SUPPLEMENT.

The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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No. 2105.—VOL. XLV. LONDON, SATURDAY, DECEMBER 25, 1875. PRICE (WITH THE JOURNAL) SIXPENCE. PER ANNUM, BY POST, £1 4s.

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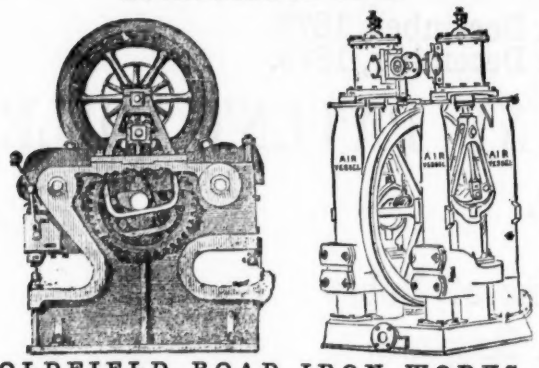

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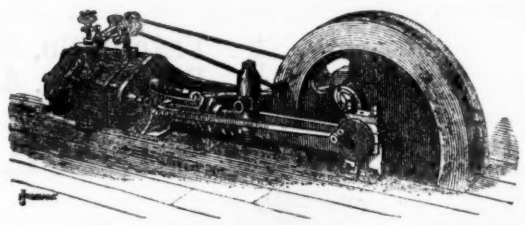

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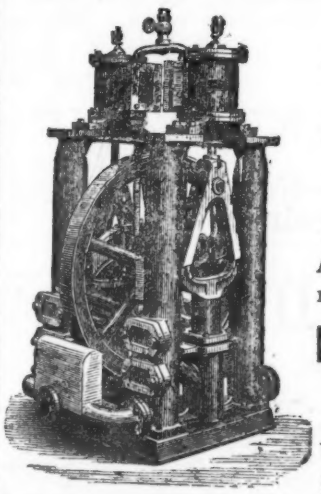

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The SIMPLEST, CHEAPEST, and BEST Machine in the World for SINKING, MINING, and QUARRYING,

It has been selected by the Admiralty for their works, and is extensively used at the principal Mines, Collieries, and Quarries of Great Britain, and the Continent of Europe.

"To this invention, which appears to possess several advantages over the machines previously exhibited at Falmouth, the Judges are *unanimous* in awarding a first-class silver medal" (the highest award).—*Report of the Judges at the Royal Cornwall Polytechnic Society's Exhibition*, 1873.

"The boring machine works splendidly."—W. TORRANCE: *Mid-Calder.*

"For simplicity, compactness, and performance of work, your drill excels all others."—JOHN MAIN: *Crossfield Ironworks.*

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"The simplest and best boring machine."—Capt. WASLEY'S letter to the *Mining Journal*, Oct. 18, 1873.

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"The rock-drill I bought of you seven months ago has given me entire satisfaction, and I am convinced that the 'Kainotomon' is the best rock-drill in the market."—P. MCGINNIS: *Strabane.*

"I am quite satisfied with the working of it. For sinking pits it is a first-rate invention; I can do as much boring with it myself as six men can do by hand."
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6.—It has not one-third the number of parts in its construction.
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8.—It is so simple in its construction that any ordinary labourer or miner can drive it, simply having to turn on the motive power and feed the drill.
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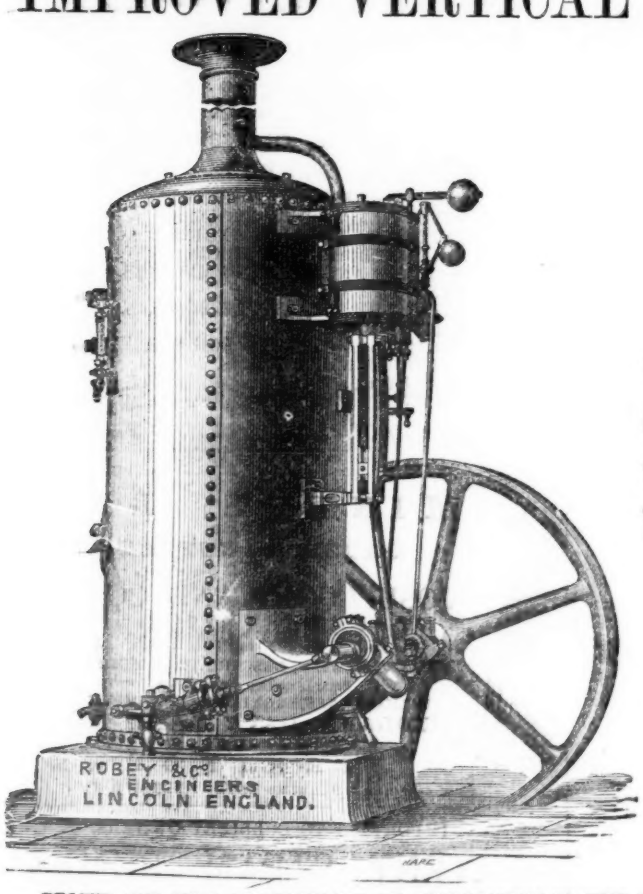

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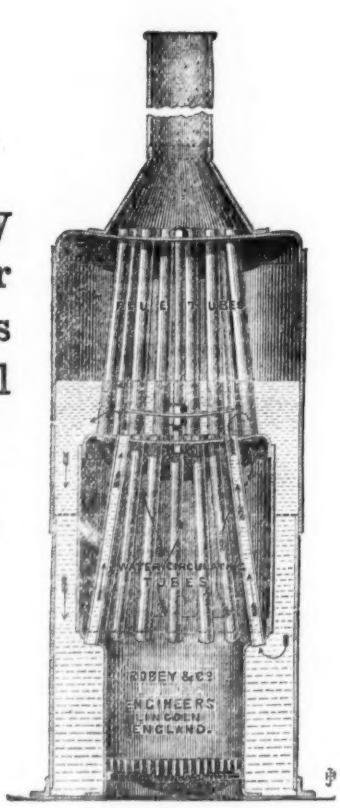

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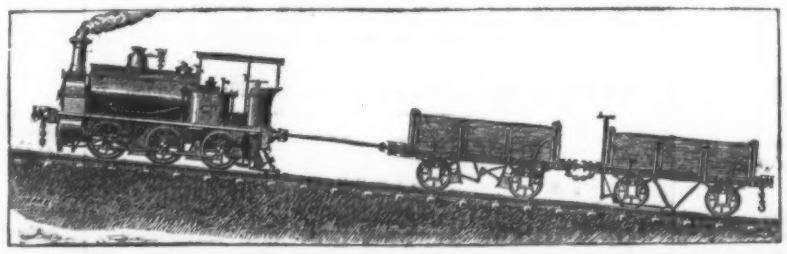

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Original Correspondence.

EXPLOSIONS IN COAL MINES.

Sir,—Referring to your leading articles in last week's Journal on colliery explosions and the use of gunpowder, it would be extremely satisfactory if such a result could be arrived at—that is, the entire prohibition of powder where inflammable gas is produced and safety-lamps are in use. But it does not appear that we have as yet found a substitute for gunpowder in breaking down coal. There were two or three machines brought before us a few years ago—one, the invention of Mr. Chubb, and another by Mr. Jones; both these machines were of a portable form, and acted by hydraulic pressure in breaking down coal in the ordinary drill-hole. How is it that nothing is now heard of these inventions, which as a substitute for gunpowder we had some hopes would by this time have come into general use?

There are other machines (Mr. Macdermott's invention) now before the public. One is the "Perforator," which is intended for drilling holes, either in coal or stone, more quickly than by the old method with the hammer; the other is for breaking down, and being a combination of the screw and the wedge should be a sufficiently powerful instrument for the purpose. It would be most satisfactory if any colliery owner or mining engineer, having tried this or a similar machine in the way indicated, could give us a favourable opinion of its merits, because if such a machine is found adapted to the purpose we should have then a solution of the problem long sought—that is. an equivalent for gunpowder, thus avoiding the great source of danger in the working of coal mines in using the latter.

I think there can be no question that the explosions which occurre l so frequently five, six, or more years ago in the mines of Yorkshire and Lancashire were clearly traceable to the ignition of inflammable fas by shot firing; the explosions at the Oakes and at Hindley Collieries may be cited as instances among many others, so that all will agree on the extreme desirability of getting rid of this source of danger when such powerful reasons for its suppression can be urged. However subtle an enemy fire-damp may be, with the use of mechanical appliances, such as one or more of those referred to, combined with the use of the "Stephenson," or other equally safe lamp, we should have, I may predict, an immunity from explosions. Whether shot firing or tampering with the lamp has been the cause of the late disaster at Swaithe Main Colliery I hope may be made out at the enquiry now going on; if the former, there will be one more instance to incite the mining profession to adopt a mechanical appliance in place of gunpowder. M. B. G.

THE PROTECTION OF EXPLORING PARTIES IN PITS.

Sir,—In reading the account of the late dreadful colliery explosion, and how a gallant man lost his life while going down into the purpose of lending succour and investigation, one cannot but feel surprised that in these days of science men should be allowed to go down without adequate protection while on such hazardous errands of mercy. Surely the inventive genius of this country could easily overcome the want. One may be unable to combat the elements which occasion such disasters in the first instance, but men who go down subsequently have only to be protected from gaseous exhalations. Would it not, therefore, be a good plan for every colliery to possess such a thing as a helmet and air-pump similar to those used by marine divers? The helmet might be made to fit perfectly air-tight merely round the neck and body, the men could be supplied with air far more easily from above than those who go fathoms deep under water.—*Plymouth, Dec.* 11. H. Sewell.

THE MINING INDUSTRY OF NORTH WALES.

Sir,—A company has just been launched having features of such exceptional interest and merit as to deserve more than passing comment on the part of the mining press of this country. The writer alludes to the Halkyn District Mines Drainage Company, which has just been brought out privately under the patronage of no less distinguished personages than His Grace the Duke of Westminster and the Right Honourable Lord Richard Grosvenor, who show their interest in it not only by subscribing for a substantial portion of the capital, but also by acting as directors.

The capital of the company is 100,000*l.*, in 10,000 shares of 10*l.* each, only 5000 of which it is at present proposed to issue, and it has for its object the drainage and further development by an adit level and branches therefrom, to be driven by mechanical means, of some of the richest lead mines and the the most promising tracts of unexplored mineral ground in North Wales, comprised within an area of 7414 acres, in the parishes of Halkyn, Northop, Cilcen, and Mold. Amongst the mines are the celebrated Deep Level and Pant-y-Go, the Rhosesmor, the Hendre, the Rhyd-y-mwyn, the Pant-y-mwyn, and the Mold Mines, whilst among the tracts of virgin ground may be mentioned that fine and promising tract lying between Pant-y-Go and Rhosesmor, and that equally promising tract south of Rhosesmor.

Nearly all the mines comprised within the area, some abandoned, have been remarkable for their richness, but their further prosecution has in most instances been found incompatible with success, owing to the very heavy charges which their drainage by steam-power has entailed; and it has long been felt that the successful resuscitation of those abandoned, and the profitable prosecution below the water level of nearly all those at present at work, and at the same time the cheapest and most effective way of draining and developing the tract intact is to adopt a system of drainage which the abrupt and great elevation of the district above the sea only too clearly points out—by means of an adit or day level, driven as little above the sea level as possible. Fortunately, this company have already at command such a level, driven nearly two miles almost into the heart of the district, and comparatively no great distance has it to be driven before it will relieve of water nearly all the mines comprised within the area, and at the same time drain and develope the chief and most promising tracts of virgin ground, relieving some mines entirely far below their lowest levels, whilst in others it will afford such substantial relief as to render their further prosecution cheap and easy.

With reference to the financial prospects of the scheme, there is every reason to think that it will not only be a solid and substantial, but also a brilliant success, and such as to give an impetus to similar schemes all over the kingdom. Unlike other mining companies, the success of this depends not upon profits, but upon royalties, levied upon all the occupiers of mines drained by means of the company's works, such royalty being 2*l.* 10s. per ton on all lead ore obtained in a large portion of the district. and a fair and equitable charge being made on other minerals. The royalties in the remaining portion, the drainage of which will not be so directly affected, show an equitable reduction. For fuller particulars the reader is respectfully referred to the prospectus, a copy of which can be had by applying to the secretary of the company, Mr. James Wakefield, Corn Exchange Chambers, Chester.

Considering only one portion of the district, or "drainage area No. 1," it may be fairly estimated that for many years 5000 tons of lead ore per year will be obtained—which, at 2*l.* 10s. per ton, will give the company an annual income of 12,500*l.*, which, after deducting cost of management, and making a fair allowance for keeping the level in repair, will leave 20 per cent. per annum on the first issue, supposing it will all be absorbed in effecting the drainage of the said area, which is not probable. This estimate is exclusive of the royalties on blende and other minerals, which will afford a substantial addition to the income.

The scheme is fairly out of the category of ordinary mine speculation, and it may further be considered a safe investment, safer than ordinary commercial investments, or investments in most foreign loans, whilst for a high rate of interest few schemes offer more solid guarantees. And it is refreshing to find that at last a mining company is launched, not as in many cases to put money into the pockets of promoters (no promotion money being paid in this instance), but to carry out a legitimate object, one almost national in its importance, and to benefit the shareholders, whilst at the same time the scheme, dictated by the highest motives, is designed to revive a languishing industry, and so to benefit the district at large.

The writer, who is entirely disinterested, and has no connection with the scheme in any way, feels with others that the district is under a load of obligation to those who have so persistently, and under such discouragement, fought for the scheme, and more especially to His Grace the Duke of Westminster, and his brother, the Right Hon. Lord Richard Grosvenor, and others, who by their generous aid and counsel have enabled them to successfully launch it, and it is devoutly hoped that the results, great as they undoubtedly will be, will exceed the most sanguine expectation. Justitia.

Dec. 21.

GOLD IN WALES—No. XII.

DOLGELLEY DISTRICT—BARMOUTH SECTION.

Barmouth Consols Mine (Celynin parish) adjoins the Anna Maria Mine near the coast, and is intersected by the Welsh Coast Railway. Mr. Howell Jones wrote (1862)—

"There are three lodes running through the sett, bearing north-east and south-west, rich in lead, copper, and gold quartz. There are also many branches of the same character."

Messrs. Christopher Alderson and J. Rowe Floyd wrote (1862)—

"This property contains five champion lodes of copper and silver-lead. If it (*i.e.*, one of the lodes) bears down to the horizontal line where the adit will intersect it there will be immense riches at once developed, the value of which is not capable of an estimate."

Mr. T. H. Henry, F.R.S., F.C.S., reported (1862)—

"I attended to witness the operations of the auriferous quartz with Jones' machine, and will now briefly state the results: ¼ ton of the quartz, previously calcined, was passed through the machine, slowly however, for want of sufficient power to work it more rapidly. I assisted in straining and passing the mercury from the pan and from the amalgamator, and having brought the amalgams here, extracted the gold from them. They yielded a button weighing 226 grains. From the residue of the distillation of the mercury I obtained 132 grains of gold (containing a little silver; total, 348 grains, or at the rate of 1½ oz. per ton. I then carefully assayed the tailings, working on a large quantity. They contained 1 dwt. 13 grains of gold per ton. This is rather more than 4 per cent. of the total quantity of gold. Upwards of 95 per cent. had, therefore, been extracted. These results are all in favour of the value of the quartz; the efficacy of the machine, which certainly ground the quartz to an exceedingly uniform fine powder; and also of the amalgamator, in the mercury of which the larger portion of the gold was found. I think, however, that the size of the machine should be considerably reduced for the sake of economy. The calcination of this quartz, previous to submitting it to amalgamation, appears to be necessary, as the gold seems chiefly associated with the iron pyrites or mundic disseminated throughout the quartz; a sample of the mundic, separated from the quartz and assayed, yielded upwards of 7 ozs. of gold per ton."

The Great Anna Maria Mine (Celynin parish) is situate on the sea coast about three miles south of Barmouth or Abermaw. Explorations for lead, copper, and gold have been made here. I have lost all the data.

Cyfannedd Fawr Lead Mine (Celynin parish) is situated about a mile to the east of the Great Anna Maria Mine. Some beautiful bright galena was obtained here, and I believe some gold.

The following is an extract from *Mining Journal* (without date)—

"At Cyfannedd Fawr Lead Mine they have received a report from Capt. John Paull, inspecting engineer, to the effect that he considers what is named as two lodes to be only one, subject to splits, faults, or horses of greenstone, the lode running nearly north and south, and dipping westward, but at too shallow a depth; he says—'It is affecting that so much money should be wasted when there is such a valley below at which to drive upon the course of lode;' the stratum is killas, the eastern branch dips west 30°, the western scarcely at all, so that about 20 fms. deeper there is every probability of their forming a junction; no engine is required. At surface is an excellent pile of good quality ore from the winze—about 3 tons dressed, and five in course, besides the halvans; on the whole, he sums up by saying that "this can be hardly called an adventure; it presents opportunity for making a good mine not often obtainable.'"

Nos. 5, 6, and 7 Crown Setts (Llanaber parish).—Capt. John Parry (1864) wrote—

"These setts are from 3 to 4 miles west of Clogau Mountain, and nearly 2 miles north from Barmouth, and contain about 600 acres.—No. 5 Sett: There is one lode to be seen at surface for a long distance in this sett, running in the direction of north-east and south-west, underlying north-west. This lode is bedded between greenstone on one side and clay-slate on the other. Two or three small openings have been made upon it, in which it is from 3 to 4 ft. in width, composed of micaceous quartz, spotted with copper ore, pyrites, &c. Its situation affords convenience for good depth, with small cross-cuts.—No. 6 Sett: This joins north with No. 5 sett. One strong quartz lode runs through it, but it is visible only in one spot, where it is 4 or 5 ft. wide, bearing nearly east and west. It is similar in character to the former, but bedded wholly in greenstone. No. 7 sett joins with the latter north-east. Three lodes at least run through it, and small openings have been made upon each of them. No. 1 lode can be seen for a long distance running in the direction of north-east and south-west, underlying north-west; it is about 4 ft. wide, composed of auriferous quartz, spotted with yellow copper ore, and large crevices, which are full of black oxide of manganese. Two or three small cuttings have been made on the course of it. No. 2 lode is a few fathoms north-west from the latter. A small shaft has been sunk upon it. I could not see the bottom of this shaft, but the two ends appear very promising. It is altogether about 4 ft. wide, 1 ft. of which is micaceous quartz, with spots of copper and pyrites, divided from the other part of the lode by 5 or 6 in. of soft clay-slate. This is, undoubtedly, a very fine and promising lode. I am told that visible gold has been picked from the small shaft mentioned; the quartz is very kindly looking. No. 3 lode runs in the direction of north-west and south-east, and forms a junction with No. 2 lode. It is from 4 to 5 ft. wide, composed of ferruginous quartz, with spots of yellow copper ore."

In No. XIII. I propose to give particulars of the Hafod-y-Morfa, or Cambrian Section.

To Jones, who writes me reprovingly from Llanfairpwllgwyngyll in euphonious Welsh, I have only one word to say, and that is one which a man of the "World" used last week—"Cryptochonchoid-syphonostomata." Jones, who writes me in plain English from Crib-y-Ddysgyll, that my letters are those of a "disappointed man," hits the nail on the head exactly. It is a fact; but it is a *split-fact*, for I am disappointed in *men* and *modes* only, and not in the minerals, which man's clumsy hand had nothing to do in the making or the arranging. "Disappointment sinks the heart of man, and the renewal of hope gives consolation," it is truly said. In my own case, disappointment has not sunk my heart very deep, and the consolation that is to be gotten out of the renewal of golden hopes in Wales will not benefit me in the least, as I am not interested pecuniarily to the value of a postage stamp in any one of the mines. As a disappointed man, of the species I mention, I propose to continue to write on this subject, in order, if possible, that the species may become extinct as far as gold mining in Wales is concerned, for as Hood says—

"Evil is wrought by want of thought,
As well as want of heart."

Almost every adventure after minerals may truly be called an animating hazard; and to take away its uncertainty, if that were possible, would be to take away more than half its interest. The highest scientific intellect, and the most extensive and varied experiences, have not, as yet, reduced it to anything like a certainty, and are never at all likely to do so. Still, mineral adventures are not only legitimate in themselves, but they are *absolutely essential to the sustentation of life in these islands.* The Mineral Statistics of the United Kingdom, of that veteran and respected statistician, Mr. Robert Hunt, for the year 1874, show of minerals raised more than 145 millions of tons weight, and of nearly 58 millions sterling value! Unprecedented items these. Gold figures for only 385 ozs., and that from the Clogau Mine. Stop all this mineral adventure, what and where should we be? It is very often but too true that in the conduct of such adventures the arithmetical morality of Owen, in "Rob Roy," is not righteously observed—namely, "Let A do to B as he would have B do to him, and the product will give the rule required." It oftener happens that the pseudo-morality prevails, "Get gold, honestly if you can," &c. But this has ever been the case, and will probably continue to the end of time. Yet, mining adventure must go on, and experience continue to be learnt in the dear school, as heretofore, by the *genus* fool, particularly in the matter of gold mining. These letters are obviously intended as sign posts on the journey to Welsh gold mining, and those who run may read, if they are not wilfully blind. "Vigilans" asks, in words not his own, "Would'st thou ruffle respectability, maltreat mediocrity, cauterise cant, vex the vainglorious, prick the pretentious, and, generally speaking, play an honest rub-a-dub-dub on the hollow and resounding ribs of Humbug?" To "Vigilans" I unhesitatingly answer, "*Yes*, come of it what may." The poet Burns also helps me to a reply—

"If there's a hole in a' your coats,
I rede ye tent it;
A chiel's amang you takin' notes,
An' faith he'll prent it."

To write fairly as well as fully on the gold history of Wales I am, alas! obliged to refer too frequently to myself to be at all pleasant, but thus it must be. I have no alternative, or I would adopt it. If it be thought that the introduction of law proceedings is irrelevant, I must answer that it is not so, for the chief part of the disappointment has arisen from the singularities of the law as regards mining operations, and I shall not be amenable to the law of libel by reference to my own case. That tiresome fellow Jones, of Llanfairpwllgwyngyll, besides loosening two or three of my front teeth in as many efforts to read his Welsh letter, has run me off the Cambrian rail into a siding, and I propose to say another word or two here touching the law as regards mines and mining.

In the *Mining Journal* for March 26, 1853, the following announcement appeared:—

"To the Editor of the 'Mining Journal.'

Sir,—I beg to offer, through the medium of your Journal, a premium of twenty guineas for the best paper descriptive of the Cost Book—its Principles and Practice. The leading points to be—

1.—The cost-book system, general in its application. 2.—The singular appropriateness of the cost-book system in the conduct of mining adventure. 3.—A code of regulations for the equitable management of mining companies. 4.—The present anomalous state of the law with reference to mining. 5.—The alterations necessary in the law for the limitation of liabilities in mining partnerships.

I propose that the papers be sent, under seal, prior to the 1st of May next, to 'Cost-Book,' to the *Mining Journal* Office, 26, Fleet-street, London, with a distinctive motto affixed, enclosing also an envelope containing real name and address of writer. The papers will be referred to a jury of five gentlemen, whose names will be published in the *Mining Journal*, on Saturday, April 23. The prize paper to be published in the *Mining Journal*. T. A. Readwin."

The following gentlemen were subsequently appointed to read the papers submitted, they being gentlemen whose several occupations and experiences rendered them fully competent for the task of deciding upon their respective merits:—Messrs. R. P. Collier, M.P., Recorder of Penzance; Chas. Hancock, solicitor; J. H. Murchison, mining agent; J. Y. Watson, F.G.S.

The following statement appeared in the *Mining Journal* for Dec. 10, 1853:—

"Cost-Book Essay—*Award of Jurors.*—We, the undersigned jurors, having considered the merits of the various essays submitted for competition, are of opinion that the writer of the essay with the motto of 'Labore non favore,' is entitled to the prize offered by Mr. Readwin. R. P. Collier. J. H. Murchison.
London, Dec. 5. 1853. Chas. Hancock. J. Y. Watson."

["On opening the sealed note which accompanied the foregoing paper, we find the successful writer to be Mr. Thomas Tapping, of the Temple, author of several legal works on mineral questions, and also the contributor of many valuable papers to the *Mining Journal*.—Ed. *M. J.*"]

I presented the successful essay to the proprietors of the *Mining Journal*, and it was published by them *in extenso*, as a *gratis* Supplement, on Dec. 17, 1853.

In April, 1854, a second edition was asked for, and it was published by Messrs. Shaw and Sons, and was entitled "The Readwin Prize Essay on the Cost-Book, its principles and practice as applicable to mining, embracing a code of rules and conditions, and also one of bye-laws, for the perfect constitution and regulation of a cost-book mining association; also suggestions for the improvement of the present anomalous state of the law in reference to mining; and a consideration of the alteration necessary in the law for the limitation of liabilities in mining partnerships. By Thomas Tapping, Esq., of the Middle Temple, barrister-at-law."

The second edition was considerably enlarged, and contained full and authentic reports of leading cases on mining law. I think it well to introduce this, because that able essay of Mr. Tapping's most certainly laid down the rails for the Joint-Stock Companies Acts to run on; about which as to their operation in actual practice I shall also have something to say elsewhere in the course of this history. At that memorable period each individual shareholder in a mining company was liable to "his last acre and his last shilling," and on the Berdan failure at Cwmhesian I was, I believe, the first adventurer shot at, and who paid the penalty accordingly. "Scotch'd, but not kill'd." A new joint-stock law has been made since then, and that law has also been clumsily amended. The law as it stands requires revision in several important points, and the law as regards "royal mines" is in a most unsatisfactory state, as will be seen at the end of this series of papers.

We will now abruptly take a turn over the Mawddach scenery to the south-east of the celebrated Clogau Mountain, which, by the way, brought forth golden mice last week, weighing 79½ ozs. from 6 cwts. 78 lbs. of quartz.—*Dec.* 22. T. A. Readwin.

CORNISH MINING—ITS EVILS AND THEIR REMEDIES.

NO. V.

Sir,—Allow me to deal with one of the most glaring and ruinous evils in connection with mining, which give unprincipled men an opportunity of preying upon their weaker brethren—an evil that is not common to Cornwall, but is alike rampant in the hills of America and Wales, the valleys of Spain and Germany, and, indeed, to a greater or less extent, wherever metalliferous mining is pursued. It is a well-known fact that there are certain men whose whole business is to get up companies to work given setts. or rather to expend money upon them. Having got the concern afloat, they begin to do a large amount of sharebroking, and, as the agent is their tool, they feel moderately certain of winning. Their mode of mining is novel. They begin by digging a pit, which is dignified with the title of engine or sump shaft; then with a great flourish the erection of an engine is resolved on. The house may be a mere wooden cover or shed, and the engine a portable one; but still it serves as a puff, quite as much as if the engine had an 80-in. instead of a 12-in. cylinder. Soon the public are plied with reports such as—"We are now progressing with all speed. We have five men at work in different levels, and ten at surface. We have been hindered packing the piston; but, having overcome this difficulty, we hope to meet cost, and eventually make the mine a prize and credit to the county. We may mention that we sampled 5 tons of copper ore last week." Such is a bogus mine—an eyesore to the unfortunate one who is deceived by it—a source of income to the sharp (or rather, to use a Yankee term, smart) officials. All the shareholder gets for his money is a report, calling upon him to subscribe 5s., 10s., or 20s. per share, and congratulations as to the improving prospects of the company, and informing him that the "plant" (consisting of a portable engine and a horse-whim) "is in good order." This, it is true, is an ideal case; but it is a type of the wretched concerns sometimes foisted on the public, and until the system can be baffled by some rigorous investigations there will always be many who inveigh bitterly against the county interest. This is why older mines are not more popular. In the present state of deep depression it will be advisable to try to fathom the depths of adverse currents to get at the seat of the internal poison, and to eradicate the home canker. Strong need calls forth harsh remedies, and the state of the county calls for the strictest integrity and the utmost circumspection.—*Dec.* 21. ——— Experienta Docet.

THE WEST MARIA AND FORTESCUE AWARD.

Sir,—When an opponent seeks to divert attention from the real merits of a question by resorting to personalities it may safely be relied upon that the weakness of his case will soon become manifest. Although I should at any time feel it a compliment to be considered a representative of Messrs. Willesford in any cause in which they might be interested, I beg to assure "A Shareholder" that neither Messrs. Willesford nor any of their representatives had the slightest knowledge or intimation the letter referred to would be written; I would, therefore, in all good fellowship counsel "A Shareholder" to adhere in future a little more closely to the facts of the case, and, at the same time, endeavour to resist the temptation of uselessly indulging in groundless charges and insinuations.

Failing completely to meet the charge of deception practised on the Journal and its readers by the suppression of a main portion of the award, "A Shareholder" reverts to the sum first named by way of compensation, and writes his opinion thereon. The answer to this part of the question is very plain and very simple. The proprietors of West Maria, being altogether unacquainted with the customs and usages of mining, sought the advice and guidance of friends who were landowners possessed of mining property, and, acting in accordance with the advice given, the sum of 4s. per ton on the ores raised was named. This sum, however, was never at any time insisted upon as a final proposition, and it was not until all right to any compensation whatever had been objected to that proceedings were instituted to obtain an equitable settlement of the question.

Exception is taken by "A Shareholder" to the term minimum rent, used in explanation of that part of the award which refers to compensation for way-leave through the West Maria shaft, and, as this is not considered sufficiently explicit, it may not be amiss, perhaps, to take his own description, by which it will be understood

that as long as the West Maria shaft is made use of for conveying ores, &c., from Wheal Fortescue the proprietors of West Maria are ensured 50*l.* per annum, either in dues or by some other mode of payment—that is to say, if the dues of West Maria do not reach that sum annually the company will make good the difference.

This point being settled, the only question remaining to be referred to is with respect to the costs, which, according to the representation of "A Shareholder," are to be paid by the proprietors of West Maria; the real fact of the matter being that the expenses of the award are to be equally divided, and the costs incurred during the former proceedings on the part of the company are to be taxed, and after passing through the eliminating process of the Taxing Master's office, the amount struck off the bill (and which it is by no means improbable will be a pretty considerable amount) will have be to met by the shareholders. OBSERVER.

SEPARATION OF LEAD AND BLENDE.

SIR,—In answer to your correspondent who wrote last week on the above subject, I would say that my letter was not written to pass by altogether unnoticed. I hope he has not come to the conclusion that because what he considers to be the most "approved of machinery and best dressers" have failed to do the work that it cannot be done. I would say to him that he has no need to "send" Thomas Ellery to Burrow and Butson Mine to get an idea of the mixture of its minerals, for he has been there already, and the first minerals the mine produced were dressed by him. And to prove whether the mineral that I dressed gave satisfaction or not, let your correspondent compare the price of the first parcel of ores sold (the markets at that time being much lower) with the price of the last parcel. Let me say that I should have remained at the mine had they given me fair remuneration; but since I left I have been offered double the wages to come back and superintend the dressing department as before. If your correspondent doubts the veracity of my statement, I have in my possession letters and telegrams from the late managing director, Mr. Henry von Uster, which your correspondent is at liberty to see. I am very sorry that with the "immense lode and most approved machinery" mentioned by your correspondent they are obliged to sell their ores at the lowest prices.

St. Teath, Camelford. THOMAS ELLERY.

WHEAL GRENVILLE.

SIR,—I have carefully read the correspondence between "Argus," Mr. T. B. Laws, and Mr. F. Clift respecting the validity of the proceedings of the special meeting of the shareholders in the above mine, held on the 19th ult. "Argus" is clearly right in his views, which are strengthened by matters he has apparently overlooked. I understand that Mr. Laws, styling himself secretary, has convened a general meeting of the shareholders for the 30th inst. It is extremely doubtful if Mr. Laws has any more right to convene this meeting than he has to convoke an assemblage of Parliament. At any rate, any shareholder can refuse to be bound by the proceedings of the meeting, and also by the acts of the parties acting as a committee of management. My opinion is that the position of the company is this—The only legally appointed officials at the present moment are the agents at the mine, and here arises a very serious question. These agents are ordering materials of merchants and employing labour on the mine when every shareholder can refuse to be bound by the proceedings of the special meeting of Nov. 19, and by any proceedings that may take place on the 30th inst. If "Argus" will consult any solicitor practising in the Stannaries Court, I think he will get my views and opinions confirmed. Z.

WHEAL GRENVILLE.

SIR,—Who is "Argus"? If "Argus" is not the "mouthpiece" of the late secretary of this mine, let him come boldly forward and sign his own name to the letter in which he is attempting to defend the late management of Wheal Grenville. With respect to the criticisms on the management, and the severe handling which "Argus" states he has received at the hands of the late secretary, I ask your readers to consider what such criticisms are worth; and, in order to properly estimate their value, I again ask, who is "Argus"? Your readers will be able to answer this question for themselves by referring to a letter which appeared in your Journal of the 20th ult., a copy of which had been previously sent to the shareholders of Wheal Grenville. "Argus," as far as I am aware, has not attempted to deny the fact of the relationship existing between the late secretary and himself; and I think your readers will agree with me that the letters which have recently appeared in your Journal, signed by "Argus," might very well have been written and signed by the late secretary.

I do not expect to be fully appreciated by an opponent, and, therefore, it is a matter of perfect indifference to me that "Argus" "fails to fully appreciate my mining experience." It is sufficient for me to know that my advice was acted upon by my clients, and that the late secretary did not insist, as "Argus" appears to have advised him to do, on a second meeting, for he handed the books, &c., to the newly-appointed secretary. I may, however, add that these books, &c., were not handed over until after I had intimated my intention of applying to the Chancery Division of the High Court of Justice on the then following Thursday for an order compelling such delivery.

Once for all, let us see what the 9th section is about. The section, after referring to the entry of accounts in the proper books, &c., continues:—

"And after the passing of this Act all existing or future companies having any rules or regulations touching the management of the company or conduct of the business of any mine, shall file a true copy of them at the office of the Registrar without payment of any fee, and such rules or regulations shall be subject to the inspection of all applicants at reasonable times; and if any company shall neglect to file such rules or regulations as above required then any shareholder in or creditor of any such company may apply for an order of the Court to file such rules or regulations forthwith, which order shall be enforced by the process of the Court."

Now, what is the penalty under this section for non-registration of rules under the Act? There is no penalty whatever, but any shareholder or creditor may apply to the Court for an order, when, possibly, the company would have to pay the costs of the application, and in such a case the adventurers would probably have caused enquiries to be made as to the negligence of their late secretary in omitting to file the rules in compliance with the Act.

"Argus," in his letter of Nov. 27, infers that a company having rules of its own (not inconsistent with the Act) may continue under them if registered, but if not registered the company comes under the operation of the Act itself, and he would now have you believe that the qualification in Mr. Rogers's opinion points to the same inference. I deny that it is so; but, as "Argus" seems to have found his position untenable, I am willing to allow him time to shelter himself behind qualifying words. He either cannot or will not see that Mr. Rogers considers the rules to be binding and in force, although not registered in accordance with the Act, and the "plain inference" to be derived from the qualification is that if such rules have not been acted upon by the shareholders for many years, or have been treated as of no binding force, then a shareholder would have had a substantial ground for alleging that the rules and regulations of the mine had either been practically superseded by other resolutions or treated as of no binding force, and therefore I say that the question I put to "Argus" in my letter were to the point, and he has (shall I say purposely?) neglected to answer such questions. It is easy enough for "Argus" to say that they have nothing to do with the argument, but he does not attempt to prove his statement.

Towards the conclusion of the meeting held on the 19th ultimo, "Argus" referred to the 9th section of the Stannaries Act, 1862, and I replied by reading part of the 4th section, and called the attention of the meeting to the fact that it began with the words—"Except as otherwise provided by this Act, or by the rules or regulations of any company, a resolution passed, &c." I then proceeded to read the three next sections, which are as follows:—

"5th.—Where anything to be done by a company is by this Act required to be done at a meeting with special notice, it shall not be valid if done otherwise than at a meeting notice whereof is served on the several shareholders not less than seven clear days before the day of the meeting, specifying the place, day, and hour of meeting, and the business to be transacted thereat, or so much thereof as is required to be done with special notice.

"6th.—A resolution passed by a company shall be deemed a special resolution within this Act when it has been passed at a meeting with special notice, and has been confirmed at a subsequent meeting with special notice, the last-mentioned meeting being held not less than 14 days and not more than one month after the meeting at which the resolution was first passed.

"7th.—A company may, by special resolution passed by not less than three-fourths in value of the shareholders present in person or represented by proxy at the meeting held for the purpose of confirming the resolution to be made special, from time to time alter the rules and regulations for the time being by custom or otherwise governing the company, and make new or additional rules or regulations in that behalf; and any rules or regulations so made by special resolution shall be of the like validity and effect as if they had been made at the original formation of the company; but nothing in this Act shall authorise a company to make rules or regulations inconsistent with the provisions of this Act, or shall abrogate any special rules or regulations existing at the passing of this Act for the management of any company, or shall authorise the making of any special rule or regulation to enable a company existing at the passing of this Act to borrow money."

Now, I ask what is the meaning of the first few words in the 5th section, where "anything to be done by a company is by this Act required to be done at a meeting with special notice?" Does the Act require that a secretary should be dismissed, or a committee appointed at a meeting with special notice? Yet this was all that was practically done at the Grenville meeting. What, then, is required by the Act to be done at a special, and to be confirmed at a subsequent meeting by a majority of not less than three-fourths? For an answer to this question I refer your readers to the latter part of the 7th section, quoted above, beginning at the words "from time to time alter," &c., and to the 17th section, which relates to the forfeiture of shares on failure to pay calls.

It is true that it is provided that nothing in the Act shall authorise a company to make any new rules or regulations inconsistent with the provisions of the Act, but this refers only to the making of new rules, &c., after the passing of the Act.

Whatever the original theory of the Cost-book System may have been (and I am prepared to admit its superiority to Limited Liability in many respects) it is clear that for all practical purposes the secretary or purser of a mine is a mere servant. The late secretary, no doubt, was at times the largest partner in Wheal Grenville, but the result of the meeting of the 19th ult. proved that the shareholders have already become aware of the fact that it was not desirable to throw too much power over their affairs financially and otherwise into the hands of the official whose cause has been so warmly advocated by "Argus." FREDERIC CLIFT.

2, *Austinfriars, Dec.* 22.

RICHMOND CONSOLIDATED MINING COMPANY.

SIR,—As a shareholder who was induced to invest when the shares stood at 15*l.*, through what I now believe to have been a discreditable rig, it afforded me much satisfaction to-day at the meeting to hear Dr. Bishop—a large holder—denounce the alleged misconduct of one of the board for promulgating damaging reports in regard to future dividends, a charge which for the sake of the property, no less than the reputation of the gentleman assailed, will, I hope, be sifted, as I fear there is some truth in the allegations made at the meeting—albeit by one interested—inasmuch as it came to my knowledge before the meeting was held that one other of the directors (on this side) had made the same damaging statement, at least so I was informed, that the Richmond Company were "financially in a bad way," but which, for obvious reasons, I abstained from mentioning at the meeting. Now, if such is really the state of matters, why not let us know the worst at once, and place the property in a healthier footing as regards funds for working capital.

Again, the directors' explanation as to the Bradford shareholders' examination of the half-yearly accounts at the office beforehand was lame and unsatisfactory—unfair to those shareholders whose actions are influenced by other considerations than stock jobbing operations. Until the Richmond board adopt the excellent suggestion thrown out by a shareholder at the meeting to-day of not allowing the cable return to be opened until after 4 o'clock (as by the Eberhardt Company) the directors will, I fear, continue to be assailed by ugly rumours of successful but questionable market operations by one at least of the Richmond board. A SUFFERER.

London, Dec. 22.

FRONTINO AND BOLIVIA COMPANY.

SIR,—I hold 900 shares in this company, that cost me many years since something considerably in excess of par. Four years ago they were almost worthless. Being conscious that I owe it to the persevering labours of the Chairman of the company under the most trying difficulties that I hold the shares at all now, inasmuch as but for those labours the company would have been long since wound-up, I venture on my own part to think it quite consistent with reason to feel indebted to the Chairman for the courage and efforts that have practically been the saving of our derelict company, and considering that the shares have risen lately in value about 600 per cent., the time has I hope in the opinion of a large majority of the shareholders arrived for presenting to him some acknowledgment for his services.—*Dec.* 21. GOOD REASON.

Meetings of Public Companies.

AUSTRALIAN CENTRAL GOLD MINE COMPANY.

The ordinary general meeting of shareholders was held at the company's offices, Austinfriars, on Wednesday,

Mr. E. W. WINGROVE in the chair.

The London Manager read the notice convening the meeting, and the report of the directors was read, as follows:—

Your directors having kept you regularly informed of the advices received monthly from Australia, they have now little to say beyond giving you the annexed extracts from the letters received from Mr. Gill by the mail on Dec. 18, and which your directors consider so far satisfactory. Your directors have received a telegram from Mr. Gill, dated Dec. 1 (delayed nine days in transmission), of which the following is a translation:—"Endeavour send funds, creditors pressing, tributary good, progress impeded past month by water." The then position of affairs will, no doubt, be explained by the next advices. Your directors conjecture that the bursts of water referred to have continued a longer period than was anticipated. Since the date at which the balance-sheet was closed the remaining shares have been subscribed for and allotted. The net liabilities, including the working costs to Nov. 3, now amount to about 440*l.* Your directors regret to announce the death of their late colleague, Major Jelf Sharp, but they do not intend to fill up the vacancy thus created, which will diminish the expenses of management. The auditor, Mr. T. E. Evans, retires, but offers himself for re-election.

Extracts from advices received from Australia, Dec. 18:—

Mr. Gill writes—I have to acknowledge receipt of an additional "wire" advice, per Oriental Bank, on Nov. 1, for 250*l.*, which amount will be duly placed to credit. The cash in hand will enable me to more effectually open out and test the value of the western and northern portions of the mine, which, I am pleased to inform you, promise well. I stated in my last report that I anticipated to be in a position to give you the result of a trial machine or two from the newly-discovered tributary. The heavy body of water we have to contend with just at present necessitates great caution in breaking up into wash dirt from the Jump-up shaft for fear of accident to the men or damage to the mine. This has now been accomplished with safety, and I hope to have twelve men at work following the course of the gutter by end of current week. Gold of a coarse nature can be freely seen in breaking ground, and everything looks well as regards the future of the mine. Regarding the burst of top or rock water and sand, of which we have a succession now for nearly three weeks past, such must be expected in new ground, and in one sense are advantageous rather than otherwise. Occurring now they drain the ground rapidly, with but little damage to the workings, compared to what would be the case when the "opening out" is in a more advanced state, or "blocking" going on. The men were withdrawn from the "faces," and the ground well secured. Both water and sand are daily decreasing, and I hope by the end of the week to be able to resume work in the eastern ground. The only drawback is the non-production of gold for the time being to meet the surface and other expenses. By the new mail, if no contretemps occurs, I shall be in a position to afford definite information as to this new ground; the upper level drives will be extended some considerable distance, and the course and extent of the gutter more clearly defined.

Capt. Angwin writes under date, Nov. 1.—During the past four weeks we have extended the bottom level 60 ft., making a total of 120 ft.; put up a Jump-up shaft, and struck the wash-dirt at 13 ft. Have now commenced to open out on top of the Jump-up shaft. The wash-dirt is coarse, and showing gold freely. I have not the slightest doubt with regard to the future prosperity of the mine. I have to inform you that a heavy and continuous burst of water and sand has taken place in the eastern ground, and I was compelled to knock the men off from working. Consequently no gold has been raised for the past fortnight, which has proved a drawback for the present, although eventually it will do good by lightening the ground, &c. The water is now lessening considerably, and I hope shortly to clear out the sand from the upper drives and recommence work. I may state that we have payable ground in all portions of the mine opened out, but the western ground we are now opening is by far the best.

The CHAIRMAN, in moving the reception and adoption of the report and accounts, said that the report was so exhaustive that it really left the directors little to say. The telegram received on the 9th inst. caused them much disappointment, but as the directors had laid before them all the information they had he had really nothing to add. They would all regret the death of their colleague, Major Sharp, which was announced in this morning's paper, but, as they had stated in the report, they did not intend to appoint anyone to fill the vacancy. No director had ever drawn one shilling in cash from the concern, but had taken their fees in shares of the company.

Mr. FURLEY enquired whether the mortgage account of 712*l.* 10s. was the only charge upon the property?—The CHAIRMAN said that there was 191*l.* 10s. 8d. due to the Bank of Victoria to Nov. 3, and 712*l.* 10s. on the mortgage account. He understood that four months' notice was required before the mortgage could be foreclosed, but they had not in this country the precise details upon which the money was borrowed. On Nov. 3 they owed 1187*l.* 5s. 8d. in the colony, against which they had 117*l.* 11s. 9d. at the bank in Australia, and 250*l.* of which Mr. Gill acknowledged the receipt in the letter just received from him. Their total assets were 747*l.*, and their total liabilities 1187*l.*, so that they were 440*l.* to the bad.

Mr. FANSHAWE was glad to hear that four months' notice was required before foreclosure of the mortgage, as he would regret the loss of the property just on the eve of success.

Mr. RAIT remarked that their property was mortgaged for only 700*l.*, and they were paying 20 per cent. interest; and he, therefore, suggested that 10 per cent. debentures should be subscribed for by the shareholders, so that the mortgage might be paid off and the property vested in the shareholders themselves. He proposed that the directors be required to exercise the powers given them in the Articles of Association by creating 3000*l.* mortgage debentures, bearing 10 per cent. interest, and repayable with a bonus of 10 per cent. within five years, the 712*l.* and the bank debts being paid out of first proceeds thereof. He was particularly anxious that none of the money subscribed for the debentures should be appropriated for directors' fees, or similar purposes, but devoted exclusively to removing the charges on the property.

With regard to the directors' fees, it was stated that they were only at the rate of 50*l.* per annum, and there were now only three directors.—The CHAIRMAN stated that he for one would not remain on the board unless they were paid, and he was quite willing to give up his seat to anyone the shareholders chose to elect.

Mr. PROCTOR and other large holders were in favour of paying the directors.

Some shareholders being in favour of raising the amount required by the issue of shares instead of debentures, it was ultimately resolved that the directors should call a special meeting to create 2000 new shares to rank with the present preferred shares. This was generally accepted by those present, and 355 shares were at once subscribed for, it being remarked that the concern was now in considerably better position than it had been on any previous occasion when funds had been asked for.

A vote of thanks to the Chairman terminated the proceedings.

ST. JOHN DEL REY MINING COMPANY.

The half-yearly general meeting of stockholders was held at the London Tavern, on Wednesday,

Mr. JOHN HOCKIN (managing director) in the chair.

The notice convening the meeting was read, and the report of the directors (which appeared in last week's Journal) was taken as read.

The CHAIRMAN said: Before I proceed to make the few observations I have to make on the report I think it as well, as there is now a large body of new proprietors unacquainted with the history of the company, to say a few words on the subject and what has been accomplished financially during its existence. The company was formed in 1830 to work a mine on lease near the city of St. Joao del Rey, hence the name of the company. That mine was a failure, and the lease was given up. The company then purchased the present mine of Morro Velho, and took posession on Nov. 29, 1834. It took eight years to bring it into a remunerative condition, but the first dividend was paid in December, 1842. From that date to the present, including the dividend now to be declared, there has been paid to the proprietors in dividends 1,035,640*l.*, or an average of 31,383*l.* per annum for each of the 33 years elapsed since the first dividend was paid. This is at the rate of 23 per cent. on the original paid up capital. The capital has now been increased, and we now pay 50 per cent. on it. We begin the report by saying that satisfactory progress has been made during the half year in opening out the mine, the works having been carried on with energy and success. The figures that appear in the paragraph immediately following, and, indeed, throughout the report are the best justification for that statement. The produce for the half-year is just 38 per cent. more than the produce for the preceding half-year, and the increase in the profits is 43 per cent. It should be borne in mind, too, that this result has been obtained during the dry season of the year when all the machinery has to be kept at a slow speed from insufficiency of water power, and that the past season was an unusually dry one, for during nearly five months only one shower of rain fell. The whole rain-fall for the six months was only 6 in. as compared with 70 in. during the preceding half-year. Early in October the rains set in, and 9½ in. of rain fell in that month; the result was at once striking, and though the month of October is not included in the period embraced in the report, I will, in order to place the latest information received by the directors before the meeting, here state the produce and profit for October and November which the cable enables us to do. The average monthly produce for the half-year ending with September was 49,652 oits.; for October it was 57,939 oits.; and for November 56,000 oits., which, being a 30 day month, and October 31 days, is within 3 oits. a day of the same daily produce each month. The average monthly profit for the half-year ending with September was 12,998*l.*, for October, it was 15,300*l.* and for November 15,200*l.* The profit for the half-year available for the dividend is 77,317*l.* 11s. 8d. The dividend we propose to pay (at the rate of 50 per cent. per annum) and 10 per cent. to the reserved fund will absorb 69,575*l.*, and leave 7742*l.* 11s. 8d. to be carried forward. Regarding this sum I shall have something further to say before I close my remarks. As regards the size of the excavation: at the end of September we had a horizontal working space of 324 ft. in length, divided into seven stopes, and the width of the lode was 80 ft. at the west end and 31 ft. at the sump near the east end. Sectional sketches of the working space in March and September are on the mantelpiece showing the difference in its dimensions at those dates. This space, which is being enlarged monthly, admitted of 28,552 tons of mineral being quarried during the half-year, which is an increase of 23 per cent. over the quantity quarried during the previous half-year. This advantage of obtaining an increased quantity of minerals from the enlarged space is not the only one. The work is done cheaper, and consequently leaves a larger margin for profit. The average yield of gold from the ore stamped during the half-year has been larger than any previous period either before or since the re-opening of the mine, and when it is borne in mind that with the exception of the very unimportant quantity of 183 tons rejected and taken for building purposes the whole of the 28,552 tons of mineral quarried were reduced and treated, it will be apparent that the resources of the mine, when fully opened out, are likely to be greater than ever. Previous to the fire as much as 43 per cent. of the mineral quarried had been rejected. It is true that during the last two or three months the yield of the stone stamped has not equalled the yield for the first part of the half-year, but that has been satisfactorily explained by a quantity of quartz and killas having been met with in the western end of the workings intruding from the south wall, much as it did in former years in the same locality higher up, which has to be taken away for the purpose of working the mine advantageously, and which it is not convenient just at present to reject without incurring undue expense. As I have already shown, however, as we have gone on month after month quantity has made up for quality, and the produce has been larger during the two last months' working than for any preceding month, notwithstanding the lower yield, and this could not have been done even with increased water-power had not the quarrying space admitted of a larger output. By rejecting the killas it would be easy enough to bring up the yield to a high standard, but that would only be an imaginary benefit, for it would not give any more gold, would increase the cost, and diminish the profit. The loss of gold in treatment during the half-year appears by the returns to be greater than since the re-opening of the mine. It should be stated in fairness, however, that it is considerably less than before the fire, when we were operating on much the same character of ores. Measures are now under consideration, the adoption of which it is hoped will lead to more perfect knowledge as to what the actual loss of the precious metal is and reduce it to a minimum. As regards the means of obtaining an additional supply of water, which we feel would be of great benefit to the company, I may state that though the lamented death of our late engineer retarded the survey, we lost no time in obtaining the services of a competent person to continue this survey which had been commenced by the late Mr. Anderson Gordon. This gentleman left this country for Brazil in August last, and is now engaged in surveying the mine to enable him to make the plans and drawings from which we have undertaken to supply the shareholders with lithographic copies. He will then proceed to complete the survey for the water-course. We have also engaged an engineer, who left for the mines in November. His first

duties will be to make himself thoroughly acquainted with the mining and other machinery and all local peculiarities, with a view of adopting under the superintendent's directions the most improved arrangements of the same, and erecting as many labour-saving machines as the local circumstances admit of. I will now say a few words regarding the financial position of the company. As regards ready money, we have, you will see, ample for all purposes, for, after paying the dividend, investing 10 per cent thereon, and paying all liabilities up to Jan. 21, before which another remittance will be due, we shall have some 8000*l.* in hand. Then as regards investments, we have 15,000*l.* of unexpended capital from new stock issued, also 10,088*l.* reserved fund invested, and 6325*l.* to invest, making in all 31,400*l.*, which may be considered as a reserve in case of any emergency arising. Now, considering the present position of the company, and especially bearing in mind that our monthly expenditure is about 7000*l.*, we strongly recommend that the reserved fund be rapidly increased to a suitable amount. In no company has the importance of having a strong reserve been more demonstrated than in this, and it would be very shortsighted policy not to take advantage of our present financial position to build up the reserve. Past experience must make it evident to all that a mining company of the magnitude of this is not in a safe position without a large reserved fund. We have prepared a resolution to transfer 5000*l.* out of the balance, 7742*l.* to the reserved fund, which we will put to the meeting after the resolution declaring the dividend has been disposed of; and we hope it will meet with the unanimous support of the meeting.

Mr. TENDRON did not think any arguments were needed to support the policy of the board in respect of the reserve fund. As such dividends were being earned, and the stock occupied such a favourable position as an investment, anything occurring to interfere with the prosperity of the company would be seriously felt by all stockholders. If any accident should happen in carrying out the numerous excavations, the stockholders would immediately suffer, and he did not know what expense might have to be incurred in re-opening the mine. They had now ample time and opportunity to provide against possible contingency, and if such contingency never arose the additional facilities he was about to suggest would prove advantageous. He suggested the advisability of commencing to sink a third shaft—a hauling shaft—outside the lode in the rock. The lode dipped very rapidly at an angle of 45° to the east, so that the workings would in time be a long way from the present hauling shaft. This would not cost more than 200*l.* to 300*l.* per month. In the course of a few years they would be of great depth, and if anything should happen to interfere with the workings of the mine it would be a most serious thing—hence the desirability of sinking a new shaft. He saw no reason why the new shaft should not be sunk successfully within a few feet south of the lode. He had no doubt the matter had already had the attention of the board.

Mr. FISHER said the report mentioned that the net profit for the half-year had been 77,000*l.* Would it not be more agreeable to most shareholders if they could be informed in future of the actual profit month by month: it would enable the shareholders from month to month to compare the net result with succeeding or preceding periods.

Mr. W. C. BROWN said the western stopes were working a width of 80 ft. He wished to know if that was the natural width of the lode, or an accidental or "loop" width? He believed the old mine worked at one time up to 100 ft., but thought that did not constitute the natural width. As to the extension of the killas he supposed that was an accidental intrusion. It seemed quite possible they would be able to get round this killas.

The CHAIRMAN replied. The question of the shafts had occupied the attention of the board for some months past. As far as they saw at present there would be no necessity to begin a new shaft; they believed by sinking shaft B equally with shaft A they would always be able to carry a level into the mine very much cheaper and quicker than by sinking a new shaft, and which perhaps might never be wanted at all. A level could be driven a mile long if necessary. By keeping shaft B well down they would be at all times in a safe position. As to issuing a statement of the profit month by month, a telegram was published of the profits, necessarily only an estimate, because, although the cost was known, it was but an estimate as to the value of the gold produced; that could not be told until the accounts were made up on this side. The killas had been met with in the old mine further up, and would again be met with they naturally expected; how far it went it was impossible at present to say. They hoped it was merely an intrusion, and that by-and-bye they would get rid of it altogether. The width of the lode was 80 ft., and made at one time as much as 100 ft., but that was a mere inequality in the lode.

A STOCKHOLDER said he had only recently bought his interest, and called attention to the absence of a balance-sheet. If a board of directors wished to be well supported by their shareholders they could not do better than publish an accurate and detailed statement of accounts.

The CHAIRMAN explained that the audited accounts were submitted at the annual meeting. The present was only an interim dividend recommended at an interim meeting. At the end of June, should the hon. stockholder then hold his interest, he would find the fullest information given on every point.

The report was received and adopted.

A dividend of 25 per cent. for the half-year (free of income tax) was declared.

The CHAIRMAN then proposed that of the 7742*l.* to be carried forward 5000*l.* be carried to the reserve fund, and invested accordingly.——Mr. TENDRON seconded the proposition, which was put, and carried unanimously.

The CHAIRMAN mentioned that would bring up the reserve fund to 36,000*l.*

Mr. GORDON (who was enthusiastically received) said that many stockholders had, no doubt, been discouraged by the yield just telegraphed; that was a point upon which he felt authorised to speak. He would say—"Do not be discouraged if you have fluctuations in your produce; if you wish the mine to be worked fairly throughout fluctuations must arise; it would be practicable to make it uniform, but it would not be for the interest of the stockholders to do so." (Hear, hear.) With regard to the killas, nothing had happened that they did not expect would have happened, because it exactly corresponded with the upper part of the same formation in the old excavation. Stockholders should keep their minds at ease upon that point. An estimate had been made that if they got 8 oits. from the mineral as quarried it would be certain to give a good and respectable profit. More than that he was sure they did not desire; if they were not satisfied with 50 per cent. on their stock he should be surprised. This could be increased by opening the mine upon a larger scale, and making the property the first in Brazil, if not in the world. It was not the richest, but had a certain mineral which yielded good gold contents, and gave a good profit if economically worked. The letters forwarded home from time to time were simply straightforward statements, and he had been fortunate in results verifying every promise he had ever made. (Hear, hear.)

Mr. JONES asked how long the lode traversed the country?——Mr. GORDON said it would be very desirable if the question could be answered definitively as to the extent of the formation. What they had to do with was what formation they knew they really had. That they knew, and that was much better than to speak of things about which they knew nothing.

Mr. JONES asked how far superficially did the formation extend? Did it it extend a mile? What was the geological formation?——Mr. GORDON said it was a conglomerate, a series of layers with strikes, and dip and inclination from the vertical.

Mr. JONES asked the magnitude?——Mr. GORDON said there was a known certain number of feet—400.

A vote of thanks was passed to the Chairman, to Mr. Gordon, and the directors, which closed the proceedings.

CEDAR CREEK GOLD MINES AND WATER COMPANY.

The third annual meeting of shareholders was held, on Wednesday, at the offices of the company, Austinfriars,

Mr. GEORGE BATTERS in the chair.

Mr. W. J. LAVINGTON (the secretary) read the notice convening the meeting, and the report was taken as read.

The CHAIRMAN then said—Gentlemen: The accounts, directors' report, and agents' report have been circulated and in your hands for some time. They contain, I may say, all the information that it is in the power of the directors to communicate to you the shareholders. We have no very exciting or cheering tale to tell. The past season has been a very indifferent one on account of the short supply of water, and the many difficulties which, unfortunately, this company has had to meet with, the large amount of boulders and inferior gravel which they met with in their late workings, and increased difficulties which, unhappily, are contingent to most mining adventures. Having met with so many difficulties in the congenial portion of the company's claims, they directed their attention to a district which you will see marked; and we are now driving a tunnel, known as the Yankee Tunnel, to unwater a large series of gravel washing claims. Several of these had been bought at very reasonable rates, and the reason for purchasing them was that when the tunnel was driven, and the proprietors of these claims found we could not do without them they would exact from us very onerous terms; the directors, acting on the advice of the manager, have followed up the policy recommended, and have invested in new claims about 5000*l.* The washing of these claims which would come through the Yankee Tunnel have not been realised; they are still in anticipation, but when we got up a portion of these claims will be proved by sinking a shaft to test the quality of the gravel, which will want exercise of patience and outlay of money. Great results may then be expected; our manager tells us so, and as the results of those where we have sunk a shaft and tested the gravel, the manager tells us we have gravel that would take 40 years to wash away. The tunnel will be driven up to them, and the result is a mere matter of calculation, and that it will recoup our shareholders with good interest for the patience exercised and the large outlay made. While the work is being done, which will require 18 months if prosecuted with vigour, the Badger claim will be intersected to enable our company to wash away from the Badger claim, which is well known to yield rich gravel, and which will, no doubt, give a good profit to the company. While prosecuting the washing now available to us, and which will shortly be available to us in the present water season, we have also a quantity of water for sale. The Gold Run will take possibly from us 2500*l.* or 3000*l.* worth or more of water. A short time ago the Gold Run was as much in the suds as we are now. It was then a case of winding up or driving a tunnel, and the result is the shares are now about 17s. 6d. a share instead of 2s. I think by having driven this tunnel and opening up this claim they will become customers for water, and will pay us 2300*l.* or more. Col. Ludlum tells us he expects something like $90,000, or about 18,000*l.* in money of profit this present water season. If that is made the money is required to be outlayed in driving up this Yankee Tunnel, and carrying out the main objects which your company have in view. That is not the worst of it. You are short of means to carry out the recommendation of the manager. He wants some $70,000, or about 14,000*l.* He says in his report:—

"It will require yet to complete the tunnel to the Deep Shaft claim, raise shafts, construct sluices, &c., about $70,000. Had I the money in hand, or ready when wanted, it will take about 18 months to do the work, driving from one face alone. During the past year I have not had sufficient funds to drive the work ahead as it should have been driven, and we have made but little progress. Our company is greatly in error in not raising sufficient funds to enable me to prosecute this work to the utmost."

There can be only one opinion as to the desirability of driving this tunnel and carrying out his recommendation. The means have been wanting; we have done everything that could be done on this side. Power was taken some time since to raise 25,000*l.* in debentures, but there were 12,000*l.* unissued. There has been an opinion that the directors might have issued all these. Not so, these debentures we were compelled to reserve in order to meet the 10,000*l.* which had been borrowed in California. Money is wanted to carry out the recommendations of the report, irrespective of the profits to be made during the present water season. I believe we shall emerge from our difficulties and yet come to the front. The other gravel washing companies are doing well; the Sweetland Creek, Birdseye Creek, and Blue Tent are doing well, the latter a company that had far greater difficulties than we have had to contend with. After the Yankee Tunnel is driven up to the Deep shaft we will have these claims to work, and I have no doubt very large profits must be realised to the company. We have now our water, and that is a great object. I have laid before you all that the directors have to say, except to ask the question where the money is to come from. I believe there is a gentleman in the room who is willing to find a very considerable portion, and to take a second charge to come after the debentures as security. He is willing to advance 6000*l.* to the company, and if anything like the amount required is received our difficulties, I have no doubt, will be surmounted. The accounts speak for themselves, and the report is so very exhaustive that it will leave me nothing to say. I will now move—"That the directors' report and statement of accounts as circulated be received and adopted."

Mr. H. C. BRIGGS seconded the resolution.

The CHAIRMAN intimated that Mr. Briggs was the gentleman who was ready to advance the sum named. (Applause.) They ought not to be satisfied with obtaining less than 10,000*l.* He (the Chairman) also stated that the board had received no fees for their services.

The resolution was then put to the meeting, and carried unanimously.

The retiring directors, Messrs. George Batters and J. J. Dunne were then re-elected, and Mr. Briggs was unanimously voted a seat at the board.

The auditors, Messrs. Good, Daniells, and Co., were re-elected for the ensuing year.

A vote of thanks was then accorded to the Chairman and directors, in replying to which the CHAIRMAN said they were now nearing the goal, and he looked forward with hope to the future.

The meeting then separated. ——

CHICAGO SILVER MINING COMPANY.

The third ordinary general meeting of shareholders was held, on Wednesday, at the offices, Finch-lane,

Major-General DAVISON in the chair.

The notice convening the meeting was read by Mr. BRIGGS (the secretary), and the report was read, as follows:—

The report of the directors states that from June, 1874, to June, 1875, there were 3418 tons of Chicago ore and 7196 tons of purchased ore smelted at the works of the company, and the profits realised from the year's work amounted to 11,557*l.*, as against 9405*l.* for the previous 15 months. Payments on account of dividends of 4*s.* per share, or at the rate of 8 per cent. per annum, were made quarterly in October, 1874, January, 1875, and May, 1875; and in August a similar amount would have been paid had it not been resolved—with the consent of the shareholders—to apply the accumulating profits towards the purchase of the Flavilla and Queen of the Hills Mine. This having turned out advantageously the dividends (which were suspended for one quarter) have this month been resumed.

The advantage of this purchase was soon manifested; the net profits which, during the year ending June last, had amounted to a reported average of about $6000 per month, increased in July to $13,000, and were in August $20,000; in September $20,000; and in October $21,000. These profits, together with those in hand at the time of the purchase and the sum sent by the board, enabled Mr. Godbe to pay off the whole cost of the mine on Oct. 19; and at the end of the month he made his first remittance of 2600*l.* from the excess of profits in hand, accompanied by the assurance that the future monthly remittances from profits were not likely to fall below 2500*l.* A telegram was received on the 4th instant, announcing another remittance of 2650*l.*

Very favourable advices from the mine continue to be received; the developments are stated to be very satisfactory, and, notwithstanding the large quantity of ore—825 tons in August, 894 tons in September, and 856 tons in October (November returns not yet to hand)—extracted since we took possession of the property, Mr. Godbe reports there are still thousands of tons in sight, the vein well defined about 3 ft. thick on either side, and the ore of good quality.

The increased profits realised for some months past have been mainly from the Flavilla and Queen of the Hills ore, supplemented by the smelting of purchased ore, but whenever full operations upon the Chicago Mine are renewed further material improvements may be looked for. The directors expect to be enabled and intend to pay off the debentures at the earliest time allowed by the conditions of the issue—at the expiration of 12 months, from June last, and to this end they will hereafter set aside from the profits realised the sum of at least 1000*l.* per month. From the residue of profits it is expected that quarterly dividends will be maintained.

The CHAIRMAN said that he now felt himself in the happy position of moving the adoption of the report and accounts, which spoke for themselves, and therefore he would have little further to say. On the occasion of the last annual meeting there was some doubt in the minds of many of the shareholders as to the future of this company. The Chicago Mine had not then realised the anticipations formed when it was first started, and, as a consequence, the manager out there was looked upon with some mistrust. Since then matters had assumed a different aspect, and he believed at the present time, as far as human judgment could go, that they had in their purchase a mine which would amply compensate them for any disappointment in the Chicago Mine. They were justified in believing this from the independent testimony of those gentlemen who had visited the mines since it had come into their possession. They had lately received a report from Capt. Selwyn, who appeared to have a practical knowledge of mining, and who had been for some time in Utah. This report spoke most favourably of the mine. It was too long to read, but it would be open for the inspection of the shareholders at the office of the company. He would confine himself to referring to two or three paragraphs as to the value of the mine. Capt. Selwyn commenced by telling them how he gained his information as to the mine. In the first place he calculates on the basis that 7500 tons had been already taken out; and he then referred to Mr. Godbe to show how far he was right. The ground proved would be nearly four times of the above area, so that they might expect about 21,000 tons to be taken out from the ground proved alone, independent of what might be discovered by further workings. The mine was bought on the estimate that they had about 3000 or 4000 tons of reserves, and it was very satisfactory to find that they had got so much more. In this opinion he was borne out by the testimony of another gentleman, a shareholder of the company, who had visited Utah. This gentleman calculated that there was about 10,000 tons, but Capt. Selwyn, R.N., gave it as 21,000, and between the two they might arrive at a pretty correct estimate. He believed the testimony borne to the value of the mine would be very satisfactory. For the reasons given in the report they were only working the Chicago Mine to a limited extent. The Hidden Treasure Mine was considered of great value, and it would, therefore, be worth some trouble and expense to endeavour to determine the ownership of it. It might be that the present possessors of the mine would have to regret that they had ever put in a claim to that which this company were clearly entitled to. For some time past the board had ceased to give information as to the operations at the mine; when they received advice from Utah as to the claim set up by the Hidden Treasure, they thought it would not do to give the good information without the bad, and to give both might alarm the shareholders. They thought it better to set the matter in its true light, which they had now done. Referring to the accounts, they would see that the general expenses were set down at 1572*l.* 13*s.* 4*d.*; this would appear a large item, and required some explanation. In that item Mr. Dowling's salary was included, with extra board and travelling expenses. Then there was 345*l.* interest paid to the bankers for discounting bills on the over drafts. The assets on hand at Utah, till June, 1874, referred to the assets for charcoal, wood, &c., which had been realised long ago. The report itself gave them every information, and he did not think, therefore, he would occupy their time any longer, and would conclude by moving "That the report of the directors and the accounts to June 13 be adopted."

Col. BYRDE seconded the resolution, and thought it would be judicious in the future to erect another furnace, and to go on smelting such ores as they could. They would like to have profits, and had waited for a long time without them, but a permanent property in the end would be much more satisfactory.

The CHAIRMAN, in reply to Mr. Hyndman, stated that the shaft which the dispute is about was on lands covered by the United States patent. In July last the difficulty arose in regard to the mine. The directors had made up their minds to pay off the debentures as soon as they could, and thought such a course would be the best for the general interest of the mines. The directors were bound to put aside 1000*l.* each month for the profits, and this must go into the bank. Some of the debenture-holders were not disinclined to accept payment of the amounts lent by them to the company.

Mr. WALKER asked what each individual director took of the debentures?

The CHAIRMAN considered that such a question did not merit a reply. They had raised the money, and that was all that was desired.

Mr. TEBB referred to a letter he had received from a friend who had visited the mine lately, and was so well satisfied with it, that he had bought a quantity of the shares. The property was looking well, and he believed that the shares would soon be at par.

Captain SELWYN, R.N., recommended that the course proposed by the board should be pursued. The work had given an enormous quantity of ore for the time, so much so that it had very nearly paid for the purchase of the mine. The mine looked extremely well at present. No man of course could tell them whether they would meet with faults in the limestone. It was also a fact that owing to the favourable situation of the Chicago smelters they could get sufficient to pay the dividends from smelting purchased ore only. The Chicago Mine had a series of pipe veins, and the Hidden Treasure had apparently hit one of those pipe veins, and claimed a former location. It was a very doubtful thing, and litigation would result, which he hoped would be favourable to the company. The Flavilla and Queen of the Hills Mines had been secured by the manager in the best way by purchasing the ground to the deep. There were no locations there, even on the edge which crops out. He had satisfied himself that the character of the mine was ore in which they might expect some permanence, as was equally the character of limestone formations. He believed the faults would be easily overcome. The question of costs was a great question. The cost of bringing the ore down at present was $3 per ton. By a small tramway it would be reduced to 50 cents per ton, which would increase the profits. The quantity of ore which went to make each ton of bullion was about 3½ tons. The ore was improving in quality, and he thought the property was a very good one. He could congratulate the shareholders on the fact of having acquired it. He believed that no mine had been acquired in America as this had been, by the self-denying of the manager, who had given them what he might have kept for himself.

The CHAIRMAN, in reply to a question, said that they proposed to declare a dividend every quarter.

Mr. ALGERNON JOY said he had visited the Flavilla Mine, and that he had been very favourably impressed by it. He had also met the vendors, who seemed straightforward and gentlemanly men. The seam of ore was continuous, and the vein was perfectly distinct on every side.

The CHAIRMAN then put the resolution for the adoption of the report to the meeting, when it was carried unanimously.

Col. Byrde was then re-elected as a director, and Mr. Meggy as auditor of the company.

Votes of thanks were then accorded to Mr. Godbe, the manager, and to the directors of the company, when the meeting separated.

FULLER'S REEF GOLD MINING COMPANY.

An extraordinary general meeting of shareholders was held on Thursday, at the offices of the company, Lombard-street, for the purpose of submitting the agreement entered into between the company and the syndicate, and to decide as to the disposal of the shares thereby renounced,—Mr. JOSEPHS in the chair.

Mr. J. BROOKE BOOTH read the notice convening the meeting.

The CHAIRMAN said he did not know whether the meeting would consider it necessary to go any further into the details of that agreement. The draft was submitted to a previous meeting, and all the headings were agreed to. The agreement, which was a very lengthy one, was then signed, and has been duly executed by all parties—by the directors on behalf of the company, and by the members of the syndicate and any other parties that were included therein—and the purport of the deed is that it settles all difficulties that existed between the parties thereto, and which are now absolutely settled. In accordance with that deed, there are a certain number of shares that were formerly allotted to the syndicate, that have been renounced; there are also a certain quantity of shares that have been forfeited for non-payment of calls in connection with the same agreement, and there also 400 shares which were originally retained by the company and placed in trust, being a portion of shares allotted to the shareholders of the Denison Gold Mining Company, who formerly owned the property. By an arrangement they entered into they were to have had one-fifth of the share capital in shares, which would have amounted to 3000; but of that number 2600 only were handed over to them, 400 being held in abeyance, in the name of trustees, pending some negociations the particulars of which, he said, he could not exactly tell; but these 400 shares were at the present time in the hands of the company. The business of the meeting is, therefore, simply to submit the agreement, and then to decide as to the disposal of the shares that he had just referred to, and that had been renounced under the said agreement.

A SHAREHOLDER then asked what was the number of shares renounced?

The CHAIRMAN replied that there were 5238 shares that formerly belonged to the syndicate; 918 shares forfeited, and that there were those 400 shares which he had just referred to, making altogether 6556 shares. He said that he should be very happy to hear any suggestions that any shareholder had to make, and failing to have any resolution submitted to him by anyone present, he should be prepared to move from the chair a resolution.

Mr. WETHERBY then asked what was the number of other shares not reckoning in those 6556?

The CHAIRMAN replied that he had a full list of the shares prepared. The total number of shares in the company was 15,000, if they deducted 6556 from that number it would leave 8444 as the total number of the shares taken up.

A SHAREHOLDER said that he thought the question as to the manner in which those shares should be disposed of depends greatly upon whether further capital was required.

The CHAIRMAN moved the following resolution—"That the arrangement between the company and the syndicate as now submitted be appointed, and that the 5238 shares formerly belonging to the syndicate but now renounced by the said agreement together with the 918 shares forfeited for non payment of calls, and the 400 shares returned out of the shares set apart for the shareholders in the Denison Gold Mining Company, making together 6556 shares, be now absolutely forfeited to the company, and be declared as reserved shares belonging to the company, to be applied hereafter in such a way as a general meeting of the shareholders may decide for the purpose of raising further working capital, should future operations at the mine require further funds for its development and working.

Mr. WETHERBY seconded the resolution.

Mr. HICKEY, in the course of some dispute which ensued, expressed the opinion that as the resolution proposed involved a reduction of capital it would be necessary to apply to the Vice-Chancellor for sanction to effect the same.

The CHAIRMAN replied that so far as could be ascertained the shareholders were unanimons on this subject, and, therefore, as there was no opposing shareholders, nor had the company sufficient funds in hand to warrant them incurring an at present unnecessary expense, the directors did not propose to apply to the Court.

Some discussion arising as to the meaning and intention of the resolution proposed—

The CHAIRMAN said that if after the expenditure of their present capital they had still some few thousands in hand, and if more money should be required in order to bring the mine into productive working, then they would have the whole of those shares as the property of the company to fall back on and to deal with for the purpose of raising further capital, for the funds in hand would be sufficient to continue the working and make this dividend-paying. These shares would still belong to the company, and it would be quite time enough then to discuss how a dividend should be paid. He said that he thought it probable that it would be a very wise thing to declare the dividend upon all the shares, and to hold the dividend upon those forfeited shares as a reserve fund. (Hear, hear.)

The resolution was then put, and carried unanimously.

The CHAIRMAN said in regard to the position and prospects of the mine, they might remember that some time ago the directors sent out to Sidney instructions to the effect that a surveyor should be engaged to report upon the company's property. The general tenor of the reports so made was that before driving either of the two tunnels, the deep adit, or the 80 ft, it was advisable to sink a middle winze, in order to ascertain whether it carried the gold to a much greater depth, and if on sinking they found the gold went down to a considerable depth, it would be advisable to expend the money in carrying on the long tunnel, in order that the stone might be got out very much more economically than it could be got out otherwise. The following instructions had been sent out:—Continue sinking; once a month telegraph to the board informing them how many feet you have sunk during the month, and also each month crush 2 tons of ore stone as taken out, and telegraph the board the result of crushing, so they might see the progress made. On Oct. 28 the board received the following letter:—"On the 15th we cabled you as follows: Sunk middle winze 7 ft. deeper, present depth being 56 ft.: 2 tons of quartz as sample, yielded 4 ozs. The middle winze is now down 78 ft., and we regret to say the last crushing of the stone from the last sinking has only shown a return of some 15 dwts. to the ton. Mr. Reynolds appears to anticipate an improved yield from the next crushing, about to take place in a few days, as the stone has again improved in appearance. It leads us to hope that the stone lately crushed was simply from a poor patch only." On Nov. 16 the directors had another telegram as follows:—"Two tons of quartz from middle winze yielded 6 ozs.; the present depth of middle winze 78 ft." This telegram proved their former surmise to be correct; the last sample had been taken from a poor patch, and showed besides that there was every reason to believe the mine would continue to improve in depth.

Upon the proposition of Mr. GREENWOOD, seconded by Mr. MONTEFIORE, it was resolved—"That Mr. Joseph be requested to continue a director of this company during his absence in Australia, and to act for the best interests of the company, with a remuneration of 100*l.* a-year and his travelling expenses."

A vote of thanks having been accorded to the Chairman, the meeting terminated.

MALABAR GOLD WASHING COMPANY.

The second annual general meeting of shareholders was held on Tuesday, at the offices of the company, Winchester House, Old Broad-street, Mr. ALFRED COBBETT in the chair.

Mr. S. A. COBBETT (the secretary) read the notice convening the meeting; the report of the directors was taken as read.

The CHAIRMAN said the whole of the matters embodied in the report had been so fully entered into in the circular lately issued that but little was left for him to say. The shareholders were fully aware of the position of the company, and of the necessity which had arisen for raising additional capital. He was happy to be able to state that 2215 of the new issue of shares had been subscribed, which would enable the further work recommended by the superintendent to be carried out. Referring next to the past circumstances of the company, he (the Chairman) recalled to the minds of those present the fact that persons intimately connected with the undertaking had shown their confidence in its success by taking shares in it. Mr. Anderson, the working superintendent, for instance, had bought 500 shares. Now, what could be a greater exhibition of faith in the ultimate success of this company than that? Mr. Williams, a gentlemen who had been out there, and others who were actually on the spot, had also invested in the concern. These facts did not, of course, at all alter the present circumstances, and he merely mentioned them to show the shareholders that the confidence held and expressed by the directors in the success of the mine was supported by the opinion of reliable men on the spot, who had backed their opinions by investing in the company's shares. If the working of the property were studied it would be seen that it was a matter of trying and testing—many failures, some successes. If the shareholders had suffered by the non-success of the mine it was to be remembered the directors suffered equally with them. They had all put their money into the concern, and if the success was

not such as they had first expected there was nobody to blame but themselves for placing their money in a speculative venture. He desired to assure the meeting that the board took every opportunity of impressing upon Mr. O'Reilly and Mr. Anderson the advisability of examining those banks of gravel with the view of ascertaining, before proceeding any length, whether they contained gold in sufficient quantities to render their working profitable. The following was an extract from Mr. O'Reilly's letter, dated Dec. 26, 1874—"Prospecting: We have really done all that could be done without incurring a considerable cost both of time and money. No idea can be formed from the surface indications over such a large area as ours. A shaft at one point near our sluice would have shown 90 ft. of clay and sand. Another near our monitor would at starting have presented fair gravel and a promising dip in the pipe-clay. A shaft a little further north-west would have uncovered a high bed rock, and we should certainly have been much puzzled." The Chairman went on to say that was really an answer to anyone who might suppose that they had not taken sufficient precautions as to prospecting. There was nothing in the accounts to which he wished particularly to call the attention of the meeting: they gave the expenses of the year and the actual financial position of the company. The Chairman concluded by moving that the report and accounts, as circulated among the shareholders, be and are hereby adopted.

Mr. F. STONE seconded the resolution.

A SHAREHOLDER said he happened to be in a great many mining companies, and they appeared to be all alike—they proved very satisfactory to the promoters and vendors, and did some good to the directors and secretary, but very little to the shareholders. Now, he took a purely shareholders' view of the whole matter; and, as a shareholder, he considered that in the present position of the company the strictest economy should be practised. He noticed that two of the directors retired on the present occasion, and with the view of saving the company their fees, he suggested that they should not be re-elected.

Mr. PEACHY pointed out that the directors were not taking any fees; moreover, the remuneration, as fixed by the Articles of Association, would not be affected by reducing the number of directors.

The SHAREHOLDER observed that even if the fees were not paid they were accumulating, and would one day become a charge on the company. In his opinion they had given ten times as much for the property as it was worth.

The CHAIRMAN said the directors had taken no remuneration for two years, and whatever money was subscribed as fresh capital would be religiously applied to the purposes for which it was subscribed—the prosecution of the works at the mine.

The CHAIRMAN explained that the reason why the report had not been sent out as usual was because the directors wished to announce therein the result of the subscription for shares, and on the very afternoon of the day that the list closed the report was issued to the shareholders. In the last paragraph of that report the directors said "The proprietors have already been informed by a circular which has been sent to them, on Dec. 3, of the financial position of the company, and of the steps taken by the directors to raise the funds necessary to carry out the work above alluded to, and they are happy to say that over 2000 of the new shares have been applied for, and a telegram has been this day sent to the company's superintendent to proceed with the work as fast as practicable."

Mr. JONES expressed himself as thoroughly dissatisfied with the report, the prospectus, and, indeed, with the entire working and management of the company.

Colonel MONEY thought it a most unbusiness-like arrangement to send out applications for shares without first consulting all the shareholders. He desired to know the amount paid to the vendors for the property?

The CHAIRMAN: The price was 52,000*l.*, of which 12,000*l.* was paid in cash and the balance in shares.

Colonel MONEY considered that the vendor was having his property proved at the expence of the shareholders, and not only this, but he had actually a large sum in cash in addition. He was of opinion that before the shareholders were asked to furnish funds to prosecute the works at the mine the vendor should be applied to, and should subscribe at least his quota.

Mr. PECHEY said it was to be remembered in regard to sending out applications for shares without first consulting the whole body of proprietors that the immediate want of money was urgent. The company had two drafts to meet, and had they failed to do so, had they gone back to Colombia dishonoured, the company's property would have been sold for just what it would fetch. Then with regard to the mine, it was to be borne in mind that the work had been much hindered by the character of the ground, nevertheless 628 ozs. of gold had been realised in what was equal to two months' washing, which was, he considered, very satisfactory. And there was gravel standing there on the property which if it could be worked with even one monitor would produce $5000 to $6000 per month. Apparently they had commenced at the wrong end, but they were now going in the right direction, and it was the hope that those further explorations would result favourably that had induced him and others to subscribe the additional capital. He did not say they were certain to find a rich body of gravel as a reward for their labours, but he was content to throw a little more good money after the first in the hope of not only recovering the whole, but of reaping some return upon it. (Hear, hear.) In his opinion the prospects of the company were even better now than when it started, for they had now some certain data to work on.

Mr. BEATON regretted that some acrimony of feeling had been shown during the proceedings, because he thought it altogether unwarranted. He was one of those who had subscribed further capital, for being a large shareholder he had deemed it a pity that their property should be sacrificed for want of a little more funds, but he did not think that gentlemen who said they would not subscribe for shares had any right to call over the coals those shareholders who had come forward, seeing that they as well would reap a proportionate benefit of whatever good might follow this further expenditure. (Hear, hear.) He only desired to add that he and his friends continued to repose undiminished and unshaken confidence in the directors.

The resolution for the adoption of the report was then carried unanimously.

On the motion of the CHAIRMAN, Messrs. C. O. Rogers and A. Gray were re-elected directors of the company.

Mr. L. H. Evans was also re-appointed auditor, at a remuneration of 5 guineas.

On the motion of Mr. THOMPSON, seconded by Mr. BEATON, a cordial vote of thanks was passed to the Chairman and directors, and the proceedings closed.

RICHMOND CONSOLIDATED MINING COMPANY.

An ordinary general meeting of shareholders was held on Wednesday, at the City Terminus Hotel, Cannon-street,

Mr. JOHN ELLIOTT in the chair.

Mr. THOMAS W. HALL (the secretary) read the notice calling the meeting. The report of the directors, which has already been published, was taken as read.

The CHAIRMAN said: You are aware, gentlemen, that this meeting is the only one contemplated originally by the Articles of Association. In May last, in compliance with the earnest wish of several of the proprietors, we held the first of the half-yearly meetings; and, as it turned out, it was a very unfortunate decision on the part of the shareholders, for these amongst other causes. In the first place, it is a very unequal division of the year—I mean our working year; and, in the second place, it so happened, from circumstances which I will presently explain, that it gave an unusually high average, which, taken by itself, stands very favourably compared with what has been done since. Naturally at this time you would have had to congratulate yourselves on having greatly exceeded the former year's work, and there would then, I am sure, have been no doubt upon your minds that the Richmond Mine, from the very first, has been a continuous success, and never has failed in any way or shape, and that it is still a great success. (Cheers.) But it has, no doubt, left a very unfavourable impression upon many minds to see this great falling off in the returns and in the profits; and now, gentlemen, I will try to explain to you how that has occurred. The main cause of how it has happened is this. You are aware that about 18 months ago we had precisely the same thing occur in our mine. We meet generally large masses of ferruginous ore, carrying a good deal of gold and silver, but very little lead: and, besides that, we have masses of carbonate and galena, carrying a high percentage of lead, and a very fair percentage of silver and gold. If we can by any means manage to bring these two masses into the furnace we get a fine result; but if we are obliged to confine ourselves solely to ferruginous ore we get comparatively small profits. During the time Mr. McGee was superintendent a large mass of this ferruginous ore was laid open in the chamber below the Lizette Tunnel, and a report was spread most industriously that we had come to ore which would not pay, and there was a great scare amongst the shareholders. We found alongside this ferruginous mass, as soon as we could pierce through the ground, a very rich ore, which soon smelted and yielded a very great profit, and the rate of profit rose from £11 per ton to £14, and, I think, up to £20. Well, after the extraction and raising up of the great mass of this carbonate ore, we had a continuous run on very favourable returns. Well, precisely the same thing occurred in the half-year ending last February. We then came, after having extracted a great deal of this ferruginous ore, upon a very favourable mass of this richly-leaded ore, and the profits ran up to £20 per ton, which was a great increase. It is the fact, with respect to these ores, that you cannot possibly predict how they will occur; they twist in every possible direction, and follow the contortion of the lode; and it so happens that, at the beginning of this half-year, they came upon a ferruginous ore which was left behind after having taken out the first portion of lead ore; and when they came to the next lode the reverse took place—the ferruginous ore presented itself first, and a richly-leaded ore left behind. That accounts chiefly for the difference in the profits. Then in the past half-year, ending Aug. 31, 1875, we had a very severe summer to contend with, as far as the intensity of the heat was concerned, and its effect upon the health of the men was so great that what with sickness, deaths, and emigration to the hills for the sake of their healths we lost 60 of our best trained hands, and we had to supplement our workmen by engaging new labourers, who had to be taught their lessons, and you know that in skilled operations without skilled hands to conduct them you cannot produce the same profits. These two facts combined account for the greater portion of the difference. We made 80,000*l.* in the first half of the year and only 31,000*l.* in the second. There was another fact coincidental with this; we knew we had plenty of this richly leaded ore in sight, but owing to inefficiency of the hoisting power, which was only calculated for 600 ft., and our explorations had gone down to 800 ft., and the whole force of the engine was required to keep the explorations going; owing to this there was no possibility of getting at this richer leaded ore, which would have added so largely to the profit from the ferruginous ore we were dealing with. In the last week that new hoisting power was erected, and we have now hoisting power capable of drawing from 2000 ft. in depth, and there is no fear of any other hitch in that respect. We sent out to you a circular in September, stating that in consequence of the news which had come of the stoppage of the bank in California the dividend which we had arranged for must be suspended, and we told you in that circular our opinion that the position of the mine and everything connected with it was then going on satisfactorily. I will tell you the reasons which induced us to believe that. When we met you last May, allusion was made to the news which had come over from time to time of the discoveries of what we called the advanced portion of the lode, and that certain dimensions were given to us from time to time of the winzes and so on, and we calculated that there was a very large supply of ore, and that that was alone sufficient to last for two or three years. Shortly after that we received a letter from Mr. Probert informing us that Prof. Price had been to Eureka, having been employed by the Eureka Consolidated Company to go over their property, and that as Prof. Price had occasion to investigate certain little disputes as to boundary with respect to the company, he had been admitted into our mine, and made a careful inspection, and Mr. Probert suggested, as he knew Prof. Price had taken notes, that it would be well to engage that gentleman to send a report. We adopted that suggestion, and cabled out for a report: Prof. Price had gone back to San Francisco, and he wrote over to us that some time had elapsed since the formal visit, and that it would be necessary for him to go again to the mine to make another inspection. This he did, he did go to the mine and made an elaborate survey of it in presence of Mr. Rickard, the then manager, and Mr. Rossiter, our mining captain. Prof. Price took every dimension in their presence, and made his calculation of the quantity of ore in sight, and he gave as the result of the calculation that there was a profit value then in those reserves equal to 677,000*l.* sterling. Now, we had no reason whatever to doubt the correctness of Prof. Price's report at the time we sent out that circular in September; we had further got since his report news of the reputed opening of the discovery on the West Hill, with which Mr. Probert was so impressed that he wrote homeward that he considered it added 50 per cent. to the value of the mine. That report influenced us very much indeed. Of course we considered, although there had been this little temporary depression owing to the want of skilled men, we knew that a railway would very soon be opened which would greatly relieve us, which would give us great facilities in getting to the mine the stores, charcoal, fuel, coke, and various things, which constitute so large a portion of our cost. Taking all these things into account, and looking at the fact that the mine had never exhibited such a good promise, we felt we might fairly use the words we did use, and that we had the fullest possible ground for doing so. It was not until quite lately we began to imagine that there might be some difference, and that Prof. Price might have made some mistake in his estimate. We were very anxious to get at the truth, we were your partners, and amongst the largest holders in this company; I think the board and their friends hold very nearly half the stock in the company. The members of the board had themselves 2600 shares on the books, and that is by no means what their real holding of shares is. I have only 630 shares in my name, but I have nearly 1400, which I bought some time ago, and I know that Mr. Hopkins has recently added to his holding, and that he has the greatest confidence in the mine, and the statements which came to us from time to time, and which were so carefully corroborated. I will just tell you how the estimates were got. The ore body—I am speaking of the advanced portion of the lode—goes down almost vertically. Well, there was a winze sunk almost in the centre—that was all in ore; at the top there was a drift run in ore, and at the bottom there was a drift run, and that again was all in ore; and when Prof. Price came he took the dimensions and cubed them, and if you will do the same there will be very little difference between what you make and what Prof. Price made. It was only recently we got information which led us to believe there might possibly be some error, and we cabled to the manager to go carefully over the reserves, and he made such serious diminution in the quantity of the reserves as compared with the estimate of Prof. Price that we wished to ascertain more accurately where the discrepancy lay before making them public. Where I think Prof. Price made 77,000 tons, Mr. Rickard only makes about one-fourth.

Mr. ASTON: 22,000 tons.—The CHAIRMAN: No.

Mr. ASTON: How many tons does he make?—The CHAIRMAN: We have taken 15,000 tons out of the mine since Prof. Price gave his estimate. Prof. Price included the number of tons in his estimate on the dump: putting this together with what Mr. Rickard gave us, Mr. Rickard's estimate would be about 47,000 tons as compared with Prof. Price's 111,000 tons.

A SHAREHOLDER: An enormous difference.

The CHAIRMAN: There is a very great difference. I must tell you this. Mr. Rickard now informs you in a letter which I have before me, and which only came a few days ago, that in the centre of this mass there is a large amount of poor ferruginous ore between the two drifts, but all that is not ore in sight, although some may be turned to good account hereafter; but he merely takes what he considers to be the pure ore which is left, and he is quite right in doing that. You must bear in mind that the end of the drift and the cross-cut is still in ore; and, although in estimating reserves you must estimate what is to be exactly measured, yet there is a fair calculation in the future that the body of ore may be indefinitely extended in all directions. You can see nothing but ore everywhere. I think it is a gratifying fact to tell you that between these very points where Prof. Price estimates the great bulk of the ore, ore is actually coming in of a much greater value than was ever estimated, and I hope it will grow in bulk even to the amount which Prof. Price calculated. The vicissitudes of mining are so great that if you debit a mine with the loss on one side it is only fair to let it have the credit of the increase on the other. However, perhaps it will be more satisfactory if I read to you the two letters which have been received from Mr. Rickard on this subject, which will make you fully acquainted with how the matter stands. Those letters are as follows:—

Nov. 30.—SIR: Since my last of the 24th inst. there is nothing new in the mine. I can only confirm the good news of the new discoveries developing well. The ore body discovered in back of the 600 level is opening out well; there has not been a great deal done on it since last week. The ground being hard it is rather slow work as compared with the work done on the old ore body in the same; the ore is good, high grade in lead and silver, but not so rich as the carbonates in gold; it is good fluxing ore, and the returns are beginning to show it. Last week we only had two furnaces working, and the quantity of ore we were able to haul from the mine was very limited. We made $35,000 gross returns, which is equal to $17,500 per furnace, which is above the average. The ore body discovered at the 600, of which I spoke in my last, is opening out splendidly. We have opened a good piece of ground here, which promises to be a good chamber of ore. The winze is sunk about 12 fms., and the dip of the ore is about 45°. The quality of the ore is good. I have ordered a small blast machine (Baker's blower) to blow air in this winze when we get down deep enough for the 700, so as to be able to drift from the winze to the drift coming from the shaft. I intended making the communication with the 600 in the same way, but was prevented only for want of air. By having one of these hand blowers we shall be able to drift from both ways, and make connection quicker. The 700 drift is being pushed on with all possible speed to get under the ore sinking on in the 600; at present the end is in hard limestone, and rather slow for driving. The bottom of the mine is looking very well, could not wish it to look better than it does. I told you in my last that we had suspended the sinking of the shaft, we shall not resume it before the new machinery is completed.

The rise in back of the 400 is about the same as last reported on. The Lizette tunnel extension is about the same, still very promising. I am expecting to strike something in this place soon. On the west side of the hill we are stoping and drifting to make communication with the winze sunk on our lines by the Eureka Consolidated Company. As soon as this is opened we shall resume the sinking on the ore. The new machinery is getting near completion. We shall be ready to make the connection some time next week; it will take nearly a week to change the gear from one engine to the other. If the old engine will hold out, I should like to make a week or two good returns. When the new engine is put to work I intend hoisting the water from the shaft, run it in a tank to clarify it, and then use it for feeding the boiler. We have to pay now $1000 per month for the water used, and if we can make use of the shaft water we shall save this big item. The third furnace was started on Sunday. I am anticipating good returns for this week, and not only for this week but for some time. For the past week we have not worked the refinery; the boiler needed repair, the tubes were very much corroded, and consumed more wood to keep up steam by one-half than it should. I am also having the water pipes laid in the ground to prevent them from freezing. It will take us a few days more to complete it all, consequently the out-turn this week will be very small, if any. On the whole, things are looking bright: the mine never looked better, the furnaces are in good trim, and the refinery will be in good working order again in a few days.—R. RICKARD.

The CHAIRMAN, who had commented upon the letters as he had presented them, continued—I always, gentlemen, when I have had any pretended news brought me about our mine giving out, I always console myself by turning back to Mr. Clarence King's report: I have had such perfect confidence in what he said, simply from the fact that it exhibited such wonderful scientific knowledge. Everything which he has said in his report has been so admirably borne out since that we have had great faith in what he has said for the future, and I say that the discoveries of these large ore beds are triumphant proof of Mr. King's theory that these great masses come up from below. I was looking the other day over the evidence which he gave in Court in the trial between us and the Eureka Company, and he had many searching questions put to him by counsel who was naturally interested in demolishing our case, by proving we had no fissure vein, and they put a question to him as to whether his opinion was that the stratum in the Ruby Hill was a bed vein or a series of unconnected chambers, and Mr. King's opinion was decidedly this, that it was originally one great bed vein, but that some great internal force had separated it, and that they would find a continuous connection, although dislocated at places, and that it had been one great bed vein. He was also asked a question with respect to the K. K. Mine, which is a continuation of the Eureka away from us, and there also he gave his opinion, and a remarkable proof of the correctness of that opinion is given in a recent number of the *Eureka Sentinel*, which states that they have come upon another great chamber. We have immense advantage over our neighbours from the fact that we never lose the ore; we have a clue by which we can find it; we have never been out of ore, and never spent useless money in dead work and exploration. That is one great reason why you see the American stock going up and down. The American mines are worked on the assessment principle; they generally divide all their profits, and when they have exhausted any particular spot they make a call, and down go their shares until they have a fresh lode of ore coming in to make them run up again. Now, we have never had to search in vain for ore, and we have always had abundance of ore. Our dumps have been always overflowing with ore. There was a delusion which prevailed, that because there was a difficulty in raising the ore, therefore the ore was not there. Now, according to Mr. Rickard's estimate, there is ore in sight for a year's consumption, besides the recent discoveries, which had added so much to the permanent value of the mine. Look at Prof. Price's report, which I believe was honestly written, for he has the reputation of being a most straightforward and honourable as well as a skilful man. He does not, however, confine himself to what reserves are actually measured, but he mentions the great promises there are in the mine. I hope you keep his reports, for really in a mine like this you must turn back from time to time to see how the predictions these men have given from time to time have been fulfilled, in order that you may keep up your confidence when there is some little interruption in the usual course of your prosperity. I may tell you that when Prof. Price sent this report to us Mr. Probert was not at Eureka at the time, he was at San Francisco; he never saw the report till afterwards. It was sent, therefore as a perfectly unbiassed report; but before we got this report we found the shares were jumping up in a most excited manner, and one day being outside the Exchange when the excitement was prevailing I asked an American gentleman the cause, and he said "Oh! I have seen a letter from Prof. Price. Before you employed Price, you know, to report officially on the mine he went over the property on the business of a third party, and on his return from this visit he wrote to a friend in London telling him his opinion of the property, which was very favourable." This it was which caused the shares to rise. I thought it was right to explain that to you because the opinion so expressed, privately to a friend, was his unbiassed opinion before he was employed by us to inspect the mine. We knew nothing about it at the time, and although when the report came it went far beyond my humble estimate, I believed in it because the calculations corresponded with those I had made from the data that had come over. Therefore, I still hope that those calculations will be verified, if not in the spot indicated, at least somewhere in the neighbourhood.

A SHAREHOLDER: Mr. Chairman, allow me to ask if the machinery is up yet?

The CHAIRMAN: Yes; up and at work. I do not know, gentlemen, whether you have seen the cablegram received to-day. It did not come yesterday, as it should have done. It mentions that the hoisting machine started to-day, and that the returns were $18,000. Therefore you have these large returns without the aid of the hoisting machine. (Hear, hear.)

A SHAREHOLDER: With how many furnaces has that return been made?

The CHAIRMAN: From three furnaces.

A SHAREHOLDER: Why did this telegram not come yesterday instead of to-day?

The CHAIRMAN: That is what we want to know. Mr. Hopkins and myself waited in the board room from 11 to 4·30 o'clock yesterday expecting it to arrive every moment, and finding it did not come we even cabled out to know the reason of the delay. Now, I hope you will disabuse your minds of anything of the kind. I assure you that we challenge the closest investigation into the minutest details of our work. If there is one thing we have striven for more than another it is that we hope to stand perfectly clear in the sight of our co-partners, and we feel we have acted faithfully in every possible respect. (Hear, hear.) And although you may have heard a great many slanderous things, they are simply unmitigated slanders, and I came here specially to-day to meet and rebut them if anyone will venture to father them. (Hear, hear.)

Mr. ASTON: Will you tell me on what day you received Rickard's account of the reserves of the mine?

A SHAREHOLDER: Might I suggest that gentlemen should reserve their questions until after the Chairman has made his speech. (Confusion.)

The CHAIRMAN: Well now, gentlemen, I wish to turn to the accounts. You have heard a great deal of quibbling and quarrelling upon the accounts we have submitted from time to time. It is no new thing, because it has gone through this fire of criticism before. Our great aim was to render the accounts in such a form and in such a manner that you should be able to dissect and examine them for yourselves. Having that end in view we have adopted what we consider the most approved form, and although the *Times* seem to think the other day that they were not so clear as they might be made, I think when they comment in that way it would be well that they should be rather more careful, and not mistake dollars for pounds, and half-year for the year.

Mr. WALKER: I would suggest that for the future the accounts be made out in pounds instead of dollars.

The CHAIRMAN: That would infuse great awkwardness in our accounts. All our accounts from the mines are in dollars, and as it is absolutely necessary that you should make comparisons between those and the accounts we issue it would only confuse the minds of shareholders did we put them into pounds sterling. Now, gentlemen, these accounts show you the expenditure on the capital account and the revenue account, and the general balance shows you that the undivided profits of the money borrowed are represented by the floating assets of the company and overpaid capital account. Well, as I have said, we tried to put that in a way that should be perfectly intelligible to you, and we held board meeting after board meeting, each of seven and eight hours duration, going through all these details, and bringing them out in such a manner as none could misunderstand them. I shall, however, be most pleased to answer any queries. But what I specially want to clear up in your minds is the nature of our position in regard to our bullion agent. You are aware that this mine was started actually without any proper capital. The whole of the capital, with the exception of 18,000*l.* specially set aside for the purpose of erecting machinery, &c., was paid over to the vendors. Well, I knew nothing about it until the prospectus was printed, but we soon found that it was utterly impossible to go on with the working of the mine without immediately borrowing 3200*l.* Well, we did borrow that sum. Then you have had the history of the different difficulties we met with. How we found that the boundary of the Richmond was in dispute between us and the Tip Top Mining Company, and how we found we could not get room for hoisting our ores out until we got possession of that mine. We had to pay the owners 15,000*l.* for that property, and after great difficulties, month after month of negociation and correspondence, Mr. Hopkins and myself, and principally through his great influence, managed to get a great part of that money back from the vendors. (Cheers.) That was one difficulty; and then you are aware of the great fights we had with the Eureka Company concerning the right to follow our lode through their ground, and that suit involved the expenditure of a great amount of time and money. As soon as we got to work, however, the mine very quickly vindicated its character as a valuable property. During this time of difficulty Mr. Myers, our bullion agent, advanced us a large sum of money to help us through that trouble, without having any cover. That was a very liberal thing for any man to do, and we felt bound to give him any turn that came into our power. That money was borrowed for two years. You met shortly afterwards, and I had then to tell you the exact position. I told you that we had this money to pay off, and we came here to ask your opinion as to what we should do. Should we raise it again by debentures—and I may say that you had previously authorised us to raise 30,000*l.* in debentures—or should we accept the offer of our bullion agent to finance us and to find the money from the bankers? On the previous occasion the case was argued very fairly and openly before you, and the *pros* and *cons* were duly set forth. It was clear that if you took up the debentures there was a temptation to keep them on without paying them off, whereas if the bullion agent financed he would keep you well up to the mark. The decision of the shareholders was unanimous that we should adopt the latter course, and, therefore, I wish to point out to you that whatever we have done we have always first consulted you, and acted in each matter with your full approval, as testified at these meetings. I want to show you what I consider is the exact position of these advances. We make a gross output of something like 400,000*l.* annually. Well, it takes three months to market the output, and it is evident that 100,000*l.* must always be paid in advance by somebody. You have no working capital; who is to find it in the meantime? If it were in this country you would probably go to some merchants or brokers and draw upon them at three months for the amount. If they accepted the bills they would be entered in your books as cash, and you would have no such item as indebtedness in your accounts. Now, this is exactly our position. Mr. Myers does not accept bills to us. Mr. Myers finances us, and therefore the claims he has against us for three months are continuous transactions going on from week to week and from month to month; the bullion is forwarded to him, and he sells it, and he advances, as I have said, the money upon it. Now, what we have done is this. We have estimated the needs of the mine for floating capital, which varies from 100,000*l.* to 120,000*l.*, and which must be always found to carry on your great business. You want 120,000*l.*, and if you borrow you borrow it upon the produce of the mine, and not upon the mine itself—upon the produce, and not upon the freehold of the mine.

A SHAREHOLDER: What is the rate of interest?—The CHAIRMAN: It is frightful; it is from 12 to 14 per cent. These are considerations which I want you to bear in mind by and-bye, but that the dividends were the excess of returns over the amount required as your floating capital; we consider they have been fair earnings, divisible as profit, and it is this excess which has been handed to you in the shape of dividend. We have never, therefore, borrowed the money to pay this dividend, but we have taken advances from him on the security of what has come out of the mine, as a rule, from the beginning. We have been taunted that these dividends have been paid out of borrowed money; if you had done such a thing as that for you I think you would be greatly indebted to us; it is a feat in financing which we do not aspire to, and if we could have done that you might have sent us to nurse the Sick Man in Turkey. To say that the dividend has been paid out of borrowed money, and to bring that forward as if it were still a fact, I say there is not an atom of truth in it; therefore I want you to clear that up in your minds, because I consider that if ever dividends were fairly earned these were fairly earned. (Cheers.) You must bear in mind that we had made our calculation, based upon the returns of this half-year, just the same as in the previous half-year; there was an element of difference given in them which puzzled us for a long time, and we can scarcely yet see our way out of it. We started that refinery, as you know, partly for the reason that it would be a great economy to refine our bullion, and partly that there was likely to be a deficiency of lead in the mine. Therefore we thought that the litharge would be returned to the furnaces, and as the best of fluxes would enhance the value of the lead. It has done that to a great extent, but I will tell you how the complication in the accounts arose, and the difficulty of testing our profits by the former scale. If it were a simple operation of putting the lead in the furnaces and producing bullion therefrom we could estimate by the assay of the bullion pretty closely the exact profit, but now the litharge and drosses are put back into the furnace, and the returns have actually come out richer in assay than the ore itself went in. This is due to the litharge which has been returned again and again from the refinery to the furnaces; it goes in as litharge and comes out bullion, and it goes back to the refinery and bullion is again produced, and it is extremely difficult to test at any one point the rate of profit we should estimate from the weekly returns. They mislead us greatly, and you cannot fix a scale for them, for if it is one tenth or one eighth to-day it may be greatly changed to-morrow when the rich lead ore comes in, and in one case we should make 20 per cent. and in another case 50 per cent. He (the Chairman) went on to say that the directors could have no possible object in concealing anything, and they did not want to allow the shareholders to draw any false conclusions. He (the Chairman) having made a few remarks regarding the assay value of the ore, concluded by moving the adoption of the report and accounts, and resumed his seat amidst loud cheers.

Mr. GEORGE HOPKINS (deputy-Chairman) seconded the resolution, and said he thought the shareholders had made a mistake in dividing the year into two portions, because one part of the year was better for making good returns than the other, and as a matter of fact the best returns were made in the first half of the financial year. Therefore, instead of dealing with each half-year separately, he would ask them to look at the results of the year as a whole; and the result of the whole year was that a net profit had been made for the shareholders of 112,300*l.* The directors had adopted the principle of making the mine self-supporting—that was to say, that all permanent improvements and buildings, and all expenses of exploration, which might very properly be charged to capital, were charged to revenue; and in the last year there had been spent on works of that description the sum of 25,844*l.*, and that amount, of course, had to be deducted from the revenue, which would leave, with the balance brought forward, a net amount, divisible under certain circumstances, amongst the shareholders of 91,600*l.*, or a net profit of 30 per cent. He did not know with what expectations some of the shareholders entered the mine, but he thought a net profit of 30 per cent. was as much as any shareholder ought reasonably to expect. He referred to the great difficulties which the directors had had to encounter during the past six months, and said he did not scruple to add that the board were disappointed with those results. As regarded what had been done with the profit of 91,600*l.*, he might state that three dividends had been paid of 17*s.* 6*d.* per share, or an aggregate amount of 47,248*l.*, being at the rate of 17½ per cent.; besides that they set aside 25,000*l.* last half-year, and they had on Aug. 31, 19,340*l.* to the credit of the revenue account, making 44,343*l.*, which was not available for dividend, for the simple reason that the money had been expended in stores and materials. He thought the result of the whole year might be considered satisfactory, and a great improvement upon the result of the year ending in August, 1874. (Cheers.) Referring to the accuracy of the estimates regarding the bullion which had been made from time to time, he said an examination of the past accounts would show that those estimates had always been under the mark, and, therefore, the shareholders might fairly assume that the present estimates were trustworthy. He went through some figures, and then proceeded to read several extracts from letters which had been received from Mr. Probert, which gave most valuable and interesting information regarding the property, and he also spoke in high terms of the value of the services rendered by that gentleman. In conclusion, he drew attention to the fact that all the information showed that the mine was going down in good ore, and there was every indication that the company possessed a very valuable property. (Cheers.)

Mr. WALKER desired before the resolution was put to ask a question or two. In the first place, he should like to know what the company were paying their agent, Mr. Myers, in respect to his advance on bullion and in the shape of commission?

The CHAIRMAN replied that it amounted to very nearly 10,000*l.* a-year, a very large sum.

Mr. WALKER thought it would be as well to try and get the shareholders to lend the company the money required at a reasonable rate of interest—say, 8 per cent. He proposed that this should be done.

The CHAIRMAN said this was just one of the things upon which the board were very glad to hear the opinions of the shareholders. Personally, he was quite satisfied that it was their best possible interest to get out of this enormous annual expenditure, and he believed they could do it in a very few months without any trouble at all if they kept back the dividends for a time, for he felt confident from the present promising appearance of the mine that the company's profits would be shortly enormously increased. (Hear, hear.) Therefore, the matter might be effected either by patience or by at once taking some such course as that proposed. If the shareholders sanctioned the raising of this money by debentures, they had

already power in their Articles of Association to carry that into effect. It remained with the meeting to decide as to which course should be adopted.

MR. HURST considered the last remark exceedingly cheering—that the profits in the future were likely to be so great that he expected in about four months all their difficulties as to borrowed capital might be surmounted if the shareholders would give up their dividend for that short period. As prudent men of business it behoves them to curtail their dividends until they were fully out of debt, and fully masters of their business. It was well worth a short sacrifice to ensure so important a saving as that of 14 per cent. He strongly counselled his fellow-proprietors to forego their dividends for about five or six months, so as to enable the directors to grapple with and overcome this difficulty of working on borrowed capital.

The CHAIRMAN thought the suggestion made carried great weight with it. It was really the one that had been floating in his own mind. He had not the shadow of a doubt that at the expiration of five or six months the company would have surmounted all its difficulties in this respect. It was not as though this was a dormant concern—they were earning money every day, every week, and their money was all the time fructifying; the fact of their not having the money in their pocket was not to be compared for a moment with the immense advantage that would accrue from finding a working capital.

Sir LEOPOLD HEATH thought an amendment to the proposal before the meeting should be moved by way of testing the approval of the meeting. The proposal made at the other end of the room was that the dividend should be limited in future to 5s. every three months, which would amount to 20 per cent. per annum, whereas during the past year the company had divided but 17½ per cent. He thought, therefore, the figures named too large, and he begged to move that the report and accounts be received, but that the directors be requested to declare no more than 2s. 6d. per share each three months as dividend until a capital of 100,000*l.* has been accumulated.

MR. WALKER begged to move an amendment to that—that a certain amount of money be raised in debentures, and that the board should continue to pay a moderate dividend of about 5s. per share every three months, and that these debentures should be repayable in the course of few years. He further suggested that the money should be raised at the lowest possible rate, not to exceed 8 per cent., and that the total sum raised should be not more than 50,000*l.*

A SHAREHOLDER added—and the shareholders be first invited to subscribe for the debentures.

On it being suggested that the consideration and passing of the report and accounts should be first proceeded with, Mr. WALKER said he desired to call attention to the office expenses. He noticed they amounted to a large sum—700*l.* for the half-year. Then, there was a solicitor's bill of 300*l.* He should like to know how that had run up.

MR. HOPKINS replied that the solicitor's charges were on account of services rendered since the formation of the company. The whole account was not yet rendered. The 693*l.*, was made up as follows:—Rent, 112*l.* 10s.: salaries, including secretary and accountant, 280*l.*; printing, 84*l.* 18s.; newspapers, expenses of general meeting and cabling, 84*l.*; sundries, petty cash, stamps, telegrams, and housekeeper, 105*l.*; and travelling expenses, 28*l.* If the shareholders would dispense with the weekly cablegrams, which he thought a most pernicious system, the expenses would be greatly reduced.—A SHAREHOLDER suggested that those weekly cablegrams should contain fuller and more intelligible information.

MR. PULBROOK, referring to a circular issued last week, pointed out the strange unanimity of action which had marked the writers of this and all the other anonymous pamphlets. In no one instance had he received a copy. It was, therefore, very evident that the writers of those different circulars were one and the same person.—MR. ASTON: Time, time.

MR. HOPKINS: I think Mr. Pulbrook we have "Veritas" (the signatory of a circular distributed at the door of the room) at this end of the room, if you would give him a hearing. (Loud laughter.)

MR. PULBROOK said he was much obliged to the writers whoever they were, because much interesting information was contained in the circulars. The company had been in actual working only a little over two years, and during that period the company had paid in dividends 140,000*l.* The whole of the capital had been expended in locations. They had not only laid out 200,000*l.* in the purchase of the original property, but they had bought the Look-Out, the Tip-Top, and two other claims. In addition to that, 30,000*l.* had been expended in defending the suit brought against the company by the Eureka Consolidated Company. Now what had they done? It would be seen that 65,000*l.* had been written out of profits in two years to capital account, and the whole of that sum had been expended in furnaces, refinery, and other reproductive work. This half-year 15,000*l.* additional had been expended on capital account. Then if the meeting turned to the assets it would be seen that the gross amount of assets over liabilities was 45,000*l.* Now, if these amounts were added together—the 65,000*l.*, the 15,000*l.* and the 45,000*l.*, together with the amounts paid in dividends—they amounted within 3000*l.* to the whole capital of the company. Now, half of the money so expended was represented by real tangible assets in the shape of stores, surface works, materials, and so on, thus leaving the speculative value of the mine at only 135,000*l.* Comparing the statements of certain speculators who had done their utmost to ruin the company with those put forward by the directors, Mr. Pulbrook contended that the latter rather than the former were to be relied on, for experience had proved that estimates of the board were truthful and accurate. (Hear, hear.) He thought having regard to the manner in which the directors had conducted the affairs of the company, and persevered and promoted, that they were entitled to the implicit confidence of the shareholders.

MR. GEORGE RICHARDSON begged to suggest, with a view to overcoming the difficulty of working on borrowed capital, that 50,000*l.* worth of additional shares should be issued to the proprietors, who would be only too ready to take them up, and by that means provide the money required.

The CHAIRMAN said the board would take these various suggestions into consideration, and come before the shareholders again shortly with a project for their practical operation as soon as it had been matured. The question could not be hastily discussed and decided upon, and he thought from the conversation that had ensued on the point the board had gathered the general opinion of the shareholders, which should be duly borne in mind when drawing out some plan of action.

MR. BRIDGEWATER hoped the meeting would not separate under the impression that the company was in a strait for money. He knew that one of the scares which had been spread abroad for the purpose of bringing down the shares had been based on a statement of that nature. In Mr. Myers they had a man whose interests were identical with their own, and therefore it was not only untrue but absurd to doubt their agent's integrity. If he were to act harshly towards the company he, having a large business on the Pacific Coast, himself would be the one most injured, and therefore, if for no other reason, he believed that Mr. Myers would serve the company faithfully. (Hear, hear.) The only question that was worthy consideration at all was the saving of 6 per cent. which would be effected by raising the money required by the company as working capital among the shareholders, and ceasing to borrow from him at 14 per cent. Curiously enough, only last night he had received a letter from Mr. Probert, dated the 1st inst., in which he had asked if 80,000*l.* could not be raised in London. Now, it appeared the question was whether the money should be raised by debentures or be accumulated by foregoing the receipt of dividends some five or six months. He did not think they need come to any conclusion on that point at the present meeting; he deprecated action being taken upon any judgment hastily formed. Now, passing on from these main questions connected with the administration and working of the property, the speaker next mentioned having received several circulars from one whom he first thought was a disinterested benevolent gentleman, but who, it turned out from enquiries he had instituted, gave advice to any and all who would receive it. Now, being unable to call himself upon the writer of these pamphlets, he had deputed someone to do so, and he had learned from this gentleman that the personal appearance of the man who had issued the circulars was very much against him, while his surroundings were not such as to inspire confidence. Now, he had always felt more sensitive about this company than any other with which he had been connected, and for this reason, that, however speculative might be the character of their property, the concern was no swindle, and because they had men of the highest principle and most undoubted honour upon the board. (Cheers, and "hear, hear.") He would only add as a piece of advice to hesitating and doubting shareholders that Mr. Probert had told him in his last letter not to let speculators come into the Richmond at 7*l.* or 8*l.*

MR. ASTON said that a friend of his had bought shares from Mr. Probert at 14*l.*

MR. BRIDGWATER denied the statement, and asked for proof of the assertion.

MR. ASTON said the shares were not standing in Mr. Probert's name, but they had undoubtedly belonged to him.

MR. HALL (the secretary) said that all the shares originally registered in Mr. Probert's name still appeared in the books as his property.

MR. BRIDGWATER, continuing his remarks on the character of the mine, said while there certainly was not much prospect of its making the shareholders' fortune in a day, yet it possessed this very valuable advantage—every appearance of being a permanent mine. (Hear, hear.)

MR. ASTON said he would inform the meeting of his opinion on the position and prospects of the Richmond Mine. The shareholders would not, he believed, receive any more dividends between this and Midsummer, and then they would be problematical. Now, those were Mr. Probert's own words, conveyed in a telegram to a friend of his, and received only last Friday. He should not have mentioned this but that the Stock Exchange had been attacked, and as he was one of its largest jobbers he deemed it only right to say thus much in its defence.

A SHAREHOLDER asked that the Chairman should examine into the allegation that had been made, which very seriously affected the character of Mr. Probert.

The CHAIRMAN said he should certainly institute enquiries with the view of ascertaining what truth there was in the statement.

MR. ASTON, in the midst of considerable confusion and angry discussion on the question raised, said that he was a dealer in the company's shares, and it was his business to obtain information as to the company's position and prospects.

Several shareholders impressed on the Chairman the absolute necessity there was for thoroughly sifting the whole of the business to the bottom, seeing that the character of a director of the company was at stake.

MR. ASTON said he should be glad to give 100*l.* to a charity if his statements were proved incorrect.

A SHAREHOLDER replied that he would rather head a subscription list for funds to prosecute the utterer of a libel. (Uproar.)

The CHAIRMAN stated, in reply to a shareholder, that Mr. Aston was the holder of seven shares; but, of course, the gentleman had a perfect right to attend the meeting, and make what remarks he pleased, provided always they were true and to the point.

MR. HURST thought it was incumbent upon Mr. Aston to give a full explanation of all the details of this matter. If Mr. Probert sent telegrams to private individuals he was unworthy of the confidence of the shareholders, and unworthy of the responsible position he held.

The CHAIRMAN had no doubt but that if there were any truth in the statement made it would admit of explanation. He felt perfectly certain of the continuance of Mr. Probert's faith in the success of the mine, and therefore doubted the likelihood of his having sent such a telegram as the one mentioned.

DR. BISHOP said he had not intended to have troubled the meeting with any remarks, but he had been so surprised, not to say shocked, at the remark made by Mr. Aston, a gentleman whom he had always heard highly spoken of, that he thought it incumbent upon him to say a few words. At the last meeting he had moved a vote of thanks to Mr. Probert, and he had done so because having been in those wild regions, and knowing something of the difficulties their manager had had to contend with, he had been fully conscious of the deep debt of gratitude they (the shareholders) owed to Mr. Probert for having brought the company to its then pitch of prosperity. But now when he heard the statement made that a member of the company's board, one of the men in whom he had, and indeed still, placed implicit confidence, for he believed the matter could be explained away, he considered it only right to say that he should be among the first to condemn, if it were proved, so shameful a breach of trust. (Hear, hear.)

MR. ASTON, after considerably further discussion on this point, moved the adjournment of the meeting to that day fortnight, and that in the meantime Mr. Probert be telegraphed to to know his opinion of the mine, and that Mr. Myers be telegraphed to to know the estimate he placed on the bullion in his possession.

This proposition met with general disapproval.

MR. BRIDGWATER observed that Mr. Aston would leave the room with the full conviction that he had done his very best to knock down the company's shares. (Hear, hear.)

The motion for the adoption of the report and accounts was then put, and carried.

On the motion of MR. HOPKINS, seconded by MR. ASTON, Mr. John Elliott was re-elected a director.

On the motion of MR. HOPKINS, seconded by a SHAREHOLDER, Mr. Edward Bower was re-elected a director.

The CHAIRMAN and MR. BOWER acknowledged their re election.

On the motion of MR. PULBROOK, seconded by MR. WALKER, the auditors—Mr. George Broom and Mr. James Fraser—were re-elected.

MR. B. BROUGHTON, a director, repudiated most emphatically the insinuation which had been made that the directors had in any way been taking advantage of any information which they might possess for the purpose of making a profit. He had held 500 shares for over four years, and had never sold a single share, and recently he had been buying more. (Cheers.)

After some further discussion of an unimportant and somewhat personal nature, the meeting was made special, to pass a special resolution of the shareholders increasing the remuneration of the directors, provided for by clause No. 72 of the Articles of Association.

MR PULBROOK said at the last meeting the following resolution was passed by the shareholders:—"That in the opinion of the members assembled at this meeting it is desirable that the remuneration of the directors for their past as well as for their future services should be increased, and that at the next half-yearly meeting they be requested to include in the notice convening the meeting the necessary alterations in the Articles for that purpose." The present meeting was, therefore, called for the purpose of increasing the remuneration. He referred to the great services which had been rendered by the directors, and the insufficient amount of remuneration which they received as compared with the value of their services, and he moved a resolution by which in future the remuneration will be increased.

The resolution having been seconded, one or two gentlemen thought the remuneration should be more dependent upon profit, and that the present was scarcely an opportune time to increase it.

The great majority of the shareholders, however, supported the motion, and MR. BRIDGWATER drew attention to the great personal responsibilities which the directors took upon themselves at a time when no one could tell whether the mine would turn out to be a success.

The resolution was then put, and carried, with but three dissentients.

A cordial vote of thanks to the Chairman closed the proceedings.

NEW CONSOLS TIN AND ARSENIC WORKS.

A general meeting of shareholders was held at the offices, St. Michael's Buildings, Cornhill, on Dec. 18, to receive and adopt the report of the directors and the audited balance-sheet made up to Aug. 31; to ratify and confirm the arrangement entered into by the directors for the settlement of the claims made upon the company in respect of the advances made by the late Edward Hall; to ratify and confirm the proceedings of the directors in connection with the formation of the company, and otherwise; and to appoint auditors, Mr. HENRY L. PHILLIPS, F.G.S. (managing director) in the chair.

The report of the directors stated that the introduction of the new process for the extraction of the copper and silver, in addition to the other metals contained in the lodestuff, has been attended with such excellent results as to confirm the favourable estimate they had formed of its value, and they, without hesitation, recommend the immediate extension of the works and appliances in order to greatly augment the profits of the company. As the manufacture of arsenic will be materially increased, it is important that this article should no longer be sold in the crude state. The directors have, therefore, determined to erect refining works upon the most approved principle, and a considerable profit is expected to be made from this valuable addition to the company's resources.

Certain beneficial arrangements have been entered into, of which the shareholders have already been informed. The issue of debenture bonds to the extent of 30,000*l.*, and certain very favourable concessions, will not only remove the indebtedness of the company, but provide means for the energetic extension of the company's operations.

The report of the managers (Capt. Richard Pryor and Son) stated they congratulated the adventurers, and they have reason to congratulate themselves, on the possession of a mineral property not paralleled, they believed, in Cornwall. If the appliances recommended be adopted they will be enabled to bring to market such an amount of tin, copper, silver, and arsenic as will surprise the community at large. They have several times referred to the side lodes which are unwrought, the returns being entirely from what they call the main lode.

The CHAIRMAN said that since the last meeting they had been actively engaged in carrying out the work referred to in the report. Works had been erected to treat 60 or 70 tons per day, besides powerful crushers, calcining ovens, and chloridising apparatus, and he hoped beneficial results would be obtained thereby. Very powerful machinery had been erected for crushing, hauling, and washing copper and silver equal to about 120 to 130 tons per day. Although the present furnaces were not equal to the reduction of more than from 30 to 40 tons per day, certain satisfactory results, however, had been achieved that there was no longer any hesitation in saying this company now possessed sufficient power to work upon a scale enabling them to realise very large profits. Considerable experience had been gained in connection with the furnaces, which had been very expensive, requiring skilled management, therefore there would be very great economy in future by the use of the newer and better furnaces. A certain quantity of argentiferous precipitate had been made in face of preliminary difficulties inseparable in the establishment of all such new processes. Notwithstanding all hindrances and difficulties during the erection works the value of metals returned amounted to 9262*l.*, of which 4538*l.* represented the argentiferous precipitate. It was stated long after the commencing the works that it was impossible to successfully treat such unpromising mineral, therefore it was exceedingly gratifying to know they had been able already to realise such satisfactory results. There had been extracted 8816 ozs. of silver from their material without any exceptional expenditure or cost; hence there could be no question as to the silver in the whole of the stuff, for the mineral treated had been taken from each level in the mine. There was no part of the property that did not produce silver, and at surface they had an immense accumulation of metals and minerals, which upon a careful analysis had been valued at between 60,000*l.* and 70,000*l.*—for silver, copper, arsenic, and tin. Considerable hindrances always take place in the progress of a new process like this, necessarily delaying results, but he hoped they would now go steadily on increasing the returns. Really it was only a question of furnace-power for roasting and chloridising their stuff; it was only necessary to put up furnaces to enable them at once to treat from 120 to 130 tons per day, but that could not be done without they had capital to erect them, which at present the directors had not in hand. The lamented death of their late colleague, Mr. Hall, had considerably disarranged the company. Mr. Hall had been a very large shareholder, and made considerable advances to the company; he did so because he had felt it was very much better for the company thus to borrow money than to issue further shares. Upon his death the directors were called upon to pay the sum of 16,000*l.* and interest, and were obliged to act very cautiously and prudently in determining as to the best course to be adopted. Mr. Hall's shares came into the possession of a gentleman already a large shareholder in the company—Mr. Edward Satterthwaite—and the company was called upon to pay its indebtedness to that gentleman. He (the Chairman) hoped that all difficulties, financially and otherwise, would be removed by the arrangement Mr. Satterthwaite had been good enough to suggest, because it, if adopted, would provide the means not only of meeting the indebtedness of the company, but also enable the directors to erect the necessary additional furnaces. Several of his colleagues had lately visited the property, and it would, no doubt, be satisfactory to the shareholders to know their opinion with respect to it. As far as his own opinion was concerned, he could repeat that it was only a question of a little time and a little further expenditure in increasing the furnace-power, because other necessary appliances were equal to the production of 120 to 130 tons per day. The sooner this work was carried out the better it would be for every shareholder. He then moved that the reports and accounts be received and adopted.

MR. CLEMENT SATTERTHWAITE (a director) seconded the proposition. In connection with his brother he held a very large interest in the company, therefore he was naturally very anxious to see the work carried on in a business-like and prosperous manner, and from time to time he visited the works for his own personal satisfaction. The erection of these large works during the severity of last winter had been attended with very great difficulties and delays, but they were now progressing satisfactorily and economically. Nothing could exceed the attention that Capt. Pryor and his son had given to these matters, and, indeed, the pride of the family was bound up in the success of the enterprise, and he (Mr. Satterthwaite) believed that in New Consols the company would see a prosperity and productiveness not likely to be equalled by any other mine, and that it would prove the pioneer of a very great success. The value of the mine consisted in the known products of the mineral therein contained, not in any part of excessive richness, except that which was good for tin. The low value of the products was their security, because they could raise any quantity they had the power to treat. They had now entered upon a settled course of working, and began to see certain satisfactory results. During September and October 772 tons and 930 tons of raw material (equal to 27 tons daily) had been worked; from that quantity of material 200 tons of arsenic had been produced, of the value of 7*l.* per ton, equal to 1400*l.*; of precipitate 15 tons, at 16*l.* per ton, equal to 1860*l.*; and of tin 10 tons, at 45*l.* per ton, equal to 450*l.* The value of the products for the two months was 3710*l.*, while the cost for the same period was 3366*l.* The proposed debentures were likely to involve a charge of 200*l.* per month, so that he thought they might say that charge with interest would be at once, which was an important point to be considered. But then they must look to what they could do by extending the works. Arsenic is now selling at 7*l.* per ton—that is, soot arsenic. It would be very profitable if they refined their arsenic, as at Devon Great Consols and other large works; the necessary works could be erected for 1600*l.*; allowing 3*l.* per ton for the cost of refining, and 2*l.* per ton profit, it would increase the profit to 4110*l.*, against 3776*l.* upon the treatment of 27 tons per day. They had to keep going an 80-inch cylinder-engine, and also a large engine for pumping and driving the stamps, which involved a certain amount of dead charges, irrespective of the amount of work done—charges which might be estimated at something like 600*l.* per month. If they were to erect Oxland and Hocking's calciners, which were being successfully used at Devon Great Consols and at Wheal Jane, for burning tin and other purposes, they could with one oven burn 15 tons per day throughout the year, without any cost for coal, simply by the employment of one man and a boy, and two of these machines could be put up for 400*l.* each. The total cost, including everything, might be put down at 4000*l.*, by which could be reduced 52½ tons per day. This would give 6870*l.* for two months (gross product), which would be equal to a net profit of 1096*l.* for the two months, and there might be added 2*l.* per ton for the arsenic, bringing up the profit to 1860*l.* for the two months. By increasing the capacity the profit could be made equal to 14 per cent. upon the capital. Any quantity of mineral could be raised that their Blake's crusher could reduce. The whole question turned upon the needful expenditure in the works indicated.

MR. LIVINGSTONE asked what was done with the sulphur?

MR. SATTERTHWAITE said it went away in the chimney, that was a very difficult matter to deal with. He had visited the sulphur works in the North of England where sulphur was produced cheaply and easily, coals being obtainable at a small cost. The sulphur makers considered a low per cent. sulphur a nuisance, and it was a question for the directors as to how is best to get this out of the way, whether by burning it off or introducing chambers to catch the sulphuric and hydrochloric acids; the latter could be advantageously used in their processes, as they now had it to buy. If the shareholders provided the necessary capital he felt sure they would have the return he had shadowed forth.

MR. DAVID J. KENNELLY (a director) had also visited the property and examined its lodes, which far surpassed all he had been told. He believed it to be a very valuable property. He had had large experience in mining industries, and, therefore, had been much gratified with what he had seen at New Consols, a description of which had been so ably put before the shareholders by Mr. Satterthwaite. Attention and modifications were necessary, and enormous power was being wasted, and would continue to be until they had the full capacity to reduce the average of the dead costs. Nothing was wanted but funds to enable them to extend the operations, and to give the shareholders more than had been stated by the previous speaker.

MR. LIVINGSTONE drew attention to the fact that the accounts did not embrace a profit and loss account.

The CHAIRMAN said that a profit and loss account had not been opened at the time the accounts were made up. It had all been expenditure for new works.

The CHAIRMAN, in reply to other questions, explained that the 10,000*l.* worth of ore at surface was based upon an analytical calculation. The accounts could not have been made closer except by delaying the meeting. As to the debentures, the directors in the report state that since the period when the accounts now presented were made up and audited certain beneficial arrangements had been entered into, of which the shareholders had already been informed. The issue of debenture bonds to the extent of 30,000*l.*, and certain very favourable concessions, will not only remove the indebtedness of the company, but provide means for the energetic extension of the company's operations. That arrangement could not fail to act beneficially upon the prosperity of the company, as thereby means would be provided to liquidate every debt, and give 12,000*l.* to 15,000*l.* capital to accomplish the specific work they had before them. He much regretted that Sir James Anderson was not present, as he was a large shareholder, and had expressed his willingness to take a seat at the board and become the Chairman of the company. This he (the Chairman) was certain Sir James Anderson would not undertake to do unless he believed that the company possessed the foundation for great results. As to the valuation of the property, it was a most difficult thing to estimate the value of a property like this; so much depended upon the success of the processes, a more accurate estimate would be obtained in 12 months hence, when calculations based upon better results could be made. Mr. Mitchell, an engineer of considerable experience, had stated that he could see in work done, materials, and machinery a value of not less than 100,000*l.*, without any reference to the value of the mineral exposed at the different levels. It would cost 200,000*l.* to do the work underground and at surface, and it would take 50 or 60 years to do it, all of which was of value to this company. They had a great extent of ground and five lodes—enough, indeed, to last them 800 years.

The CHAIRMAN, in reply to further questions, said the directors were called upon to pay 17,000*l.* by the executors of the late Mr. Hall, and Mr. Satterthwaite had suggested that the claim should be paid by debentures, extending over a period of five years. Mr. Satterthwaite had agreed to give a certain bonus of shares, being at the rate of 30 per cent., for all debentures applied for; 1400 shares had been given up for that purpose. In addition to that, he gave 1628 shares to be sold for the benefit of the company. There were 2709 shares not yet issued, so that by selling 4535 shares, and placing the remainder of the bonds (3850*l.*), the directors would be able to pay off the whole of the liabilities, and have 12,000*l.* to 15,000*l.* to develope the works.

The report and accounts were adopted.

MR. KERLY (the solicitor) submitted the legal forms necessary for carrying out the arrangement, which were confirmed by the meeting.

The retiring auditors were re-elected.

An extraordinary general meeting was then held for the purpose of passing special resolutions altering the Articles of Association of the company, by making the maximum number of directors six instead of five; entitling the board to set apart and receive for their remuneration 600*l.* per annum, and also any surplus profits in any year over and above what may be sufficient to pay a dividend of 10 per cent. upon the paid-up capital of the company, not exceeding (including the 600*l.*) a gross sum of 1500*l.*, the same to be divided among them as they may deem fit, the managing director not to participate in the same; and empowering the board to make any payment for the company, and to satisfy any debt, claim, or liability of the company (whether undertaken or incurred by the company in pursuance of, and in order to carry out the agreements of Feb. 12, 1874, hereinbefore mentioned or originally incurred by the company, or otherwise, howsoever), either wholly or partly in cash, shares, or securities; and, as to shares, in shares wholly or partially, or to be treated as wholly or partially paid up, or in mortgages, bonds, debentures obligations, or other securities of the company.

A vote of thanks to the Chairman and directors concluded the proceedings.

NEW CHIVERTON MINING COMPANY.

The statutory meeting of shareholders was held at the company's offices, Austinfriars, on Thursday—Mr. W. JARDINE in the chair.

MR. J. H. MURCHISON (the London manager) read the notice convening the meeting, and the subjoined reports from Capt. Southey, of West Chiverton, and from the agent of the mine was submitted.

Dec. 20.—In accordance with your instructions, I have this day inspected the above-named mine:—The engine-shaft is sunk 10 fms. below the 35; the lode during the last 9 feet sinking has greatly improved, now 2 feet wide, and worth for length of shaft about 20*l.* per fathom. In looking at the strata of the rock in which the lode is imbedded, also the beautiful strong fleachy lead it is now producing, it appears that you have got on the top of a good shoot or pipe of lead; I would, therefore, recommend to sink the shaft (say) 5 fms. deeper, making this lift 15 fms., after which cut, plat, case and divide the shaft, and open north and south on the course of the lode with all possible dispatch; and when the end is being extended from shaft—say, 4 or 5 fms. each way—then lose no time in sinking the shaft again to the 60. At the same time push on the drivage at the 50, and when they are extended a sufficient distance from the shaft commence at once to put up a rise, and when communicated to the 35 would lay open ground for stoping, and also thoroughly ventilate the bottom of the mine. The ground from 6 fms. below the 35 up to the 15 contains plenty of water; lode hard, and exceedingly close, so that I would defer sinking winzes for the present, as it would be attended with a good deal of expense in pumping water. But I fully believe as depth is attained the lode will be found richer, and we may naturally expect more porous, when winzes instead of rises would be most profitable in order to lay open the mine with quick dispatch. In concluding my remarks, I can only say that I am exceedingly well pleased with the character of the lode in the bottom of the shaft, more especially because the lead looks stronger and not so fine grained as the level above; in fact, similar in character to West Chiverton lead.—H. SOUTHEY.

Dec. 22.—It affords me very great pleasure to inform you that the engine-shaft, which is now 10 fms. 2 ft. 6 in. below the 35, is being sunk in a large well-defined lode, worth fully 18*l.* per fathom, and both the ends of the shaft are of equal value with the bottom. It is also gratifying because the lode at the 35, in the place where the shaft started from that level, has no regular bearing or underlie, in consequence of being in a disordered piece of ground, but after sinking the shaft a little over 7 fms. through a twisty piece of ground, with the lode sometimes in the shaft and sometimes out, it came into a very fine stratification for the production of lead, in which the lode has taken its regular bearing and underlie, and is looking promising to be very productive. The 35 north is driven about 34 fms., 20 fms. of which is worth 10*l.* per fathom; the remainder is a good leady lode, but the present end, though kindly, is unproductive. In the 35 south a good improvement is daily expected; the lode in the end is worth about 5*l.* per fathom. There are two rises going up from the 35 for ventilation and facilities for taking away the ground, but we hope the lode at the next level will be sufficiently porous to drain itself, so that we may be able to sink winzes in the bottom of the 35; the latter course, if obliged to concede to it, will be very tedious and difficult to carry out. The tribute pitches continue to look well, and are producing their usual quantity of lead.—JAMES TREWARTHA.

The CHAIRMAN stated that this was the statutory meeting required to be held by Act of Parliament, and he was glad to be able to give a very satisfactory account of the state of the company and of the mine. The whole of the shares had been subscribed for and paid upon, and it would be seen by the reports now to be submitted that the mine had progressed and improved considerably since the present company took possession. An inspection had been made this week by Capt. Southey, manager of West Chiverton, who stated the shaft was now 10 fms. below the 35, and for the last 9 ft. sinking had greatly improved, being now worth 20*l.* per fathom, and that he was exceedingly well pleased with the character of the lode, which was similar to that of the West Chiverton. He thinks that

the present bottom of the shaft is at the top of a good bunch of lead ore. It was expected that the 50 would be reached by the beginning of March, where he (the Chairman) believed a very productive lode would be laid open. He would state the improvement in the shaft was very important, as in the 35, where the shaft started from, the lode was worth nothing, and was not nearly so well defined. He would also add that the 55 north had been driven 34 fms., 20 fms. of which is worth 10*l.* per fm.; the remainder a good leady lode. As soon as it could conveniently be done, the shaft would be continued to a 60, and he had little doubt that next year he would be able to congratulate his fellow-shareholders upon having a rich and profitable mine.

A vote of thanks to the Chairman terminated the proceedings.

BLUE HILLS TIN MINING COMPANY.

A general meeting of shareholders was held at the offices, Austinfriars, on Tuesday,—Mr. CHESTER CHESTON in the chair.

Mr. HICKEY (the secretary) read the notice convening the meeting, and the minutes of the last were confirmed.

The accounts for 12 weeks ending Oct. 30 showed a loss of 200*l.*; the debit balance was 516*l.* 12s. 10d.

The report was read, as follows:—

Dec. 18.—During the past 12 weeks we have had a considerable increase of water in the mine, which for nearly three weeks flooded the bottom levels. At present however, it has again got back to its normal state. To prevent if possible such a sudden influx again we have for the past fortnight devoted the whole of our available force to the clearing of an old south adit, by which we hope to keep up a quantity of surface water which finds its way through old workings below the adit. The lode in the 50, east of Poulyear shaft, appears just now to be again separating itself in two parts, without, however, much change in its value. The various tribute pitches throughout the mine continue much the same as for some months past. A little better price for the produce is very much needed both by the adventurers and the tributers. Looking at the lode now being opened out in the adjoining mine at the 60 east towards this sett, and under the same poor floor of ground as is found in this mine, we are more than ever impressed with the importance of sinking the engine-shaft (say) 20 fms. deeper, which would correspond with the general dip of the tin ground seen above and below this valueless ground in both the Pink and Penhalls Mine. By doing this there is every prospect of success, being ensured, and would open out almost a new mine.—S. BENNETTS, A. GRIPE.

The CHAIRMAN pointed out that during the quarter embraced in the accounts there had been sold 11¼ tons of tin, realising 530*l.*; the highest price the tin fetched had been 51*l.* 17s. 6d., and the lowest 48*l.* The committee proposed to carry the balance forward as the loss during the quarter had been so small. He further mentioned that it was intended to commence sinking the engine-shaft, and there was no doubt that when the hard bar of ground had been passed through results of a satisfactory character would be met with, similar, it was hoped, to those realised in the adjoining mine.

The accounts were passed and allowed, and, with the report, were ordered to be entered on the minutes.

A vote of thanks to the Chairman closed the proceedings.

PENHALLS TIN MINING COMPANY.

A general meeting of shareholders was held at the offices, Austinfriars, on Tuesday,—Mr. CHESTER CHESTON in the chair.

Mr. HICKEY (the secretary) read the notice convening the meeting, and the minutes of the last were confirmed.

The accounts for twelve weeks ending Oct. 2 showed a credit balance of 688*l.* 14s. 9d., and a profit of 60*l.*

The report was read, as follows:—

Dec. 18.—We beg to furnish you with the following as our report on the various operations, &c., now in progress:—The 70, east of engine-shaft, was extended a considerable distance on the main lode, on which the engine-shaft was sunk, until the rising of the junction eastward of one of those gossan faults cut it off: a short distance was then driven on the course of the gossan until another lode was intersected, which produced some low quality tinstuff, but not of much value. After driving some 20 fms. on this lode without much change, and the ground hard, we thought it advisable to drive south some 7 to 8 fms. to intersect what we call the downright lode, about which is easy ground for driving; this will enable us to get under the tin ground in the 60, which is still some distance ahead, much sooner than we could do by continuing the end on the lode just referred to. The downright lode is not yet cut. The 60 east end has for some time been passing through a series of faults beyond the cross course, and, consequently, as many sections of the lode to open out, which seriously interferes with development. Some 8 fms. south of the first, or north, lode found in this end, on the east side of the cross course, we have intersected what is, probably, the main lode in this part of the mine; it is altogether 8 to 9 ft. wide, and worth 12*l.* to 15*l.* per fathom for tin, beside about ½ ton of copper ore; this latter, however, is only temporary, although indicative of good tin ground near at hand. This, probably, is a continuation of the tin ground from the 50 downwards. A stope in the back of this level, on the north part, is worth 8*l.* per fathom. Four stopes in the back of the 50 east are worth in the aggregate 42*l.* per fathom. The 50 cross-cut north seems near a lode from the increase of water, and small quantities of tin in the capels by the cross-course. The 50 west end is worth 9*l.* per fathom; the 45 west, 7*l.*; and the 40 west, 6*l.* per fathom. The 45 east is worth 7*l.* per fathom. In the tribute department there is not much worthy of notice, the price of tin being so low that speculation on the part of the tributer is almost out of the question. Within the past month we have fixed a new cylinder, piston, piston-rod, top nozzle, and valves to the drawing-engine, at a cost of nearly 70*l.*, the old parts being completely worn out; this makes the engine equal to a new one. All other machinery is in good working order.—S. BENNETTS, W. HIGGINS.

The CHAIRMAN said that during the twelve weeks 45½ tons of tin had been sold, realising 2237*l.* There had been a profit on the twelve weeks' operations of 60*l.*, which could not be considered altogether unsatisfactory with tin at its present low price. The report was as favourable as it had been for some time past, the various points of operation fully maintaing their value; with an improved price of tin the returns might be increased. The committee did not propose to recommend a dividend upon the present occasion, but suggested the credit balance should be carried forward to the next account. With an improvement in the price of tin the payment of dividends would be resumed.

Mr. CLARKE said the report upon the mine was satisfactory, the only drawback being the low price of tin. Everything was being done to further the permanent interests of the mine.

The accounts were passed and allowed, and, with the report, were ordered to be entered on the minutes.

Mr. HICKEY explained that during the winter months a great deal of the Penhals water was pumped to surface by the Blue Hills engine, and it was considered only just that Penhalls should contribute somewhat to the increased cost thus incurred.

A resolution was passed that in consideration of the assistance of the Blue Hills engine the Penhalls Mine subscribe 20*l.* per month for three months towards the working cost of the Blue Hills pumping engine.

A vote of thanks to the Chairman closed the proceedings.

RUBY CONSOLIDATED MINING COMPANY.

The general meeting of shareholders was held at the London Tavern, Bishopsgate-street on Thursday,

Mr. J. M. HYDE in the chair.

Mr. M. AIKMAN (the secretary) read the notice convening the meeting, and the subjoined report of the directors was submitted:

The directors submit to the share and debenture holders the balance sheet and accounts of the company, made up at San Francisco and Eureka to Nov. 30, 1873, and in London to Nov. 30, 1875; they again regret that notwithstanding repeated application has been made to Mr. Hermann Heynemann, he has up to this date failed to furnish the board with any single item of his accounts beyond the above-mentioned period.

You will observe that 15,679*l.* 10s. 5d. appears by balance sheet to be due to Mr. H. Heynemann, and the directors have only to repeat what was mentioned in the third paragraph of the last report.—"1. They have grounds for belief that several shipments of bullion do not as yet appear in the accounts to hand.—2. They have been informed, subsequent to the date of the balance sheet, that the furnaces were leased, it is believed, for the sum of $2000 per month, and no credit has been given in respect of this lease.—3. The Eldorado Mine was also leased for a sum which has not been mentioned, and no sum appears to the credit of the company, on this head, in the accounts rendered by Mr. H. Heynemann."

On reference to the last report it will be noticed that your directors anticipated the necessity of sending some confidential person to San Francisco, to obtain for them more authentic information; with this view they availed themselves of the services of Mr. Bernard (a gentleman who is a shareholder in the company, and had private business in San Francisco) to visit the mine, and report to them the result of his observations. They also deemed it necessary to appoint an agent in whom they could depend, to take such action as will be required to obtain possession of the mines and other property; with this object your directors have placed the whole matter in the hands of Messrs. Falkner, Bell, and Co., of San Francisco who have, your directors are glad to say, conducted the business to their entire satisfaction. The latest reports received from them, show that the suit at San Francisco has been gained, and that a receiver was ordered by the Court to be appointed.

Your directors have the satisfaction of report that the Chairman, Mr. Malcolm, has visited San Francisco, and held interviews with Messrs. Falkner, Bell, and Co., Mr. Bernard, and the counsel employed by them on behalf of the company. He reports most favourably of the action taken by these gentlemen; they have also to report that your Chairman will visit the mines himself about January next, before his return to England.

The directors wish to state that they do not consider the shareholders have given them the support which they were entitled to expect, as the amount raised by debentures is lamentably small, and consequently the burden of the lawsuit has been at the cost of a few individuals, which is manifestly unjust. The directors are of opinion that more funds must be forthcoming, and earnestly hope that the shareholders who have not yet applied for debentures, will respond to this appeal by at once doing so in proportion to their holding—10 per cent.

The present directors think it right to state that they have not asked for or received any remuneration whatever for their continuous and anxious services.

The CHAIRMAN said he had but little to say in explanation of the report and accounts. When the present board took office there were no funds, and they were obliged to issue debentures; the result was shown in the accounts. A remittance of 1200*l.* had been forwarded to Messrs. Falkner, Bell, and Co., for the purpose of the legal proceedings in San Francisco; and he must remind them that it was the dispute between the company and the original vendor that had caused this action to be taken. The directors thought it necessary that their affairs should be in the hands of respectable persons in San Francisco, and for this reason Messrs. Falkner, Bell, and Co. were appointed to get possession of the property in dispute. As far as they had gone they had been successful. Their Chairman, Mr. Malcolm, had visited San Francisco, and seen both Messrs. Falkner, Bell, and Co. and the local authorities, and his report to the board was highly satisfactory. Messrs. Falkner, Bell, and Co. had entered into the usual bond for $5000 in the suit against Heynemann, and had engaged Mr. Wilson on behalf of the company as legal adviser; and Mr. Malcolm reported that in his interview with Mr. Wilson, and Messrs. Falkner, Bell, and Co., the former expressed a favourable opinion of their case. This was satisfactory, as Mr. Wilson is considered one of the soundest counsel in San Francisco. Mr. Heynemann had filed an answer to the suit of the company against him, but Mr. Wilson expected to be able to get it set aside. A telegram had been received by the directors from Mr. Bernard on Dec. 4, in which he states that he has got possession of some of the mines, and since that he had telegraphed again for certain documents which he required, and these had been sent out to him. The authorities at San Francisco had decreed the appointment of a receiver, and the suit would now be continued in Nevada. These operations, however, could not go on without substantial assistance from the shareholders. The directors had done the best they could. There was a small balance in London, and Messrs. Falkner, Bell, and Co. had about $1400 in San Francisco. The directors earnestly recommended those who had not already done so to subscribe their 10 per cent. He might remind them that their property was contiguous to that of the Richmond Company, and the directors believed it would prove as valuable; they, therefore, urged the shareholders to render them the necessary assistance. The net profits from the Ruby for May was understood to be 5000*l.* for the month, and this was the only month of which they had any particulars, for they had had no report whatever from Mr. Heynemann. If the report of 5000*l.* for the month were correct, the directors thought it would prove the value of the property. He concluded by moving the reception and adoption of the report and accounts.

Colonel WALPOLE D'OYLY seconded the motion, which was put to the meeting and carried unanimously.

Mr. W. A. Malcolm was then re-elected a director, and Mr. J. F. Hamilton was re-appointed auditor, a vote of thanks to the Chairman terminating the proceedings.

WEST MILWR SILVER-LEAD MINING COMPANY.

The following is a copy of the directors' report which was read at the general meeting of shareholders on Dec. 17:—

The directors have much pleasure in reporting to the shareholders that the works at the company's mine have progressed without intermission since July, 1874; and although they have not yet resulted in complete success, yet they are, upon the whole, satisfied with the favourable indications met with in the cross-cut now being driven, thereby giving a promise that the value of the company's property will be established as soon as the Great Milwr lode, which it has been their aim to reach, shall be cut. They refer the shareholders to the report from the captain of the mine, which gives details of the present position of the works.

It will be seen from the balance-sheet that very few shares have been issued to the public, and these without any cost of advertising or any commission paid to the brokers. All the moneys subscribed have been spent solely in developing the property, and neither the directors, solicitors, or the secretary, who by arrangement made with him is entitled to 150*l.* per annum as salary, office rent, and clerk's expenses, have as yet received anything in respect of their claims. The secretary has, moreover, advanced above 370*l.* to the company, in order to enable it to meet the cost-sheets as they have become due, for which sum the company is now indebted to him. The directors would draw the attention of the shareholders to the fact that the whole of the purchase-money was paid in shares, and that the bulk of these shares have been purchased by a few gentlemen, who have undertaken to reinvest a portion of the proceeds of the sales in capital of the company, and from this source the directors anticipate early and satisfactory results, as they have every reason to believe that so soon as the Milwr lode is cut the company's shares will become of considerable value. Sir Edwin Pearson is the director retiring by rotation at this meeting, but being eligible offers himself for re-election. The retiring auditor, Mr. Baker, also offers himself for re-election, and his remuneration must be fixed by the shareholders.

THE GOVERNMENT EXPERIMENTS IN IRONMAKING IN INDIA.

The following important communication upon this subject has just been laid before the South Staffordshire Mill and Forge Managers' Association, to whom it has been addressed by Mr. Walter Ness:—

Warrorah, C.P. India, Nov. 5.—I promised some time ago to give you a few particulars in reference to the iron experiments I have been making with the raw materials of this district. You can easily understand how desirable it is in a vast country like this, with a young railway system, and where its further development is so much needed, that iron should be made upon the spot if at all practicable. I may just add here that your ironmakers at home need not be jealous at such a proposition, for the effects of our ironwork here would hardly be felt in Great Britain. Whether such a thing is practicable I will ask you to judge after I have given you a few particulars now at hand. I enclose a sketch of the arrangements I have lately been using, and as most of you can read plans I will leave any description of them out, further than saying that the course I adopted was on the usual blast-furnace principle, and that afterwards the Bessemer process was intended to produce steel ingots for rails.

The iron ore is a very rich magnetic variety. There are several hills, notably those at Lohara—longitude, 79·47 east; latitude, 20·25 north; and Pipulgaon, longitude, 79·32 east; latitude, 20·33 north: where several million tons of ore can be had above the surface of the surrounding plains that would yield from 60 to 70 per cent. of metallic iron. You may judge of its purity from the following analysis which I made of a sample I brought from Pipulgaon some time ago. It is as follows:—Protoxide of iron, 63·0; peroxide, 31·5; lime, 0·5; magnesia, phosphorus, sulphur, traces not estimated; silica, 4·5; loss, &c., 0·5—total, 100·0. Metallic iron, 71·05. This was not an exceptional piece by any means. I have since sent native cartmen, without any supervision, who brought here some 60 tons, all of which is as rich as the sample analysed. I got another sample of brown iron ore, which I thought might do well for mixing purposes, from Ruterapur—longitude, 79·37½ east; and latitude, 20·22½ north. This I found by analysis to give the following results:—Peroxide of iron, 71·0; lime, 2·0; magnesia, 1·0; silica, 26·0—total, 100. Metallic iron, 49·7. The limestone is similar in appearance to some of the mountain limestones in England, and gives by analysis from 88 to 90 per cent. of carbonate of lime, and a little magnesia; and may, therefore, be considered suitable for fluxing purposes. We have any quantity of this within five miles of Warrorah. This coal field I have previously attempted to describe, and so far as quantity is concerned I believe there is more than has ever been named as likely to be found: in fact, the seams are so thick—from 30 to 80 ft.—that a comparatively small area becomes practically inexhaustible. We have already proved by boring over 20,000,000 tons of coal, but this is by by no means the limit of the field. The quality is now what chiefly concerns us, and I will give you an analysis of the coal, which may be taken as representing the greater part of the measure:—Volatile combustible matter, 33·75; coke, 56·7; fixed carbon, 43·70; ash, 13·00; moisture driven off at 212° Fahr., 9·55—total, 100. I made this analysis from about 1 ft. of the No. 2 seam, which is 15 ft. thick in the shaft now sunk. Sulphur in coal, 0·25; specific gravity, 1·30. One cubic foot will weigh 81·25 lbs., 27·5 cubic feet will weigh 1 ton.

From this analysis it does not appear that the coal should be a bad article at all, and this is found to be the case in using it for the generating of steam in a large open grate. The ash is twice the quantity of what is found in the general run of English and Welsh coals, still, with a little extra firing, this is readily overcome. Its appearance is generally of a dull black, relieved now and then with a lustrous hand of 1 in. or sometimes a few inches in thickness; it is somewhat flaky, or in thin films, and may be better understood when I state that its appearance suggests that it holds an intermediate position between lignite and true coal. Now, coming more to the point I wish to be at with you, I thought at one time that the iron ore, limestone, and coal might be made to answer for the manufacture of iron on the ordinary blast-furnace principle, and that a good Bessemer pig might be the result of pursuing such a course.

You can easily calculate from the analysis I have given that the gross amount of foreign matter that would require to go into the furnace to make a ton of iron is not much, if any, in excess of many of the mixtures in use at home. I started the furnace in the usual way, possibly giving it a better chance in having it thoroughly dry, and filling it three fourths full of dried timber before lighting it, and then filling regular charges of coal, limestone, and iron ore, in the proportion of 2, 1·6th, and 1 respectively, with ½ part of charcoal. Blast was let on gently after the first appearance of slag before the tuyeres. After about 48 hours' blowing which was ultimately increased to a little over 3 lbs. pressure to the square inch, and to about 600 cubic feet per minute in volume. At the end of the time named I found the hearth full of spongy iron, and though I raised the temperature by blank charges and extra blast till I melted even the fire-bricks forming the hearth, yet the iron would not liquefy. On cooling down the furnace to get the mass of iron out (which was over 30 cwts.) I found a great portion of it similar to what a puddled ball would be if it were left without being shingled. A number of pieces were cut off and worked in a smith's forge without any great difficulty. In the mass of iron in the hearth were embedded pieces of ashes from the coal which had dropped down past the tuyeres without being fused. At the tunnel head I noticed that the coal rapidly decrepitated, which is, doubtless, due to the quantity of moisture it contains. This impoverished coal then descended to the zone of fusion just above the tuyeres with little or nothing left to do the work required of it.

After this I put up roughly a small reverberatory furnace, to see the action of the coal when burned on a separate grate. I made this after the pattern of an ordinary puddling furnace. After drying, &c., I charged it with about 1 cwt. of old castings, and had no difficulty in boiling it in the course of two hours. I may add, however, that as this furnace had in part been a sort of Catalan forge, I still kept the blast-pipes in, and used about ½ lb. pressure of blast on two pipes leading under the fire-grate, each 2 in. in diameter, instead of making an open fire-grate as you have ordinarily at home. I also put a small pipe on the top of the arch, about ½ in. wide and ½ in. deep. The result of this trial led me to believe that ironmaking here is not a hopeless task, after all. That the ordinary blast-furnace principle will not do is evident; but that some other course may do I see no reason to doubt. Suppose that three regenerative furnaces (Siemens') were to be applied, one at each tuyere-room (they need not be large, with the small quantities in bulk), and the iron and charcoal charged in about equal quantities in bulk, I believe that there is no reason to doubt that the iron would be revived readily. By so doing the virtue of the coal would be obtained, with none of the evil effects resulting from the excess of ash. Such rich iron ores always work cold with the best of coal, even with high furnaces, but more especially will it do so with coal that yields such an amount of ash as this does, and which so readily decrepitates and loses its vitality before it is covered by the succeeding charges at the top of the furnace. From what little I have heard of Blair's process, I think that there would be no difficulty in doing good work with the raw material we have here by it, but I am hopeful that a more speedy and cheaper method may be devised, and that ere long it may be applied here, where, if the quality of the coal is not what we might wish it to be, still I have shown that it is capable of giving both intensity and quantity of heat, and that the iron ore cannot be excelled in richness.

I think that some course might be found which would produce iron more quickly and cheaper than by Blair's process, particularly with such exceptionally rich iron ore as we have here. The preferable course for the trials would be, perhaps, to send a few tons of coal, ore, &c., to be tried at one or more of those works that are working satisfactorily. This, you may remember, was done by the Iron and Steel Institute of Great Britain, when a committee—of which your secretary (Mr. Lester) was a member—were sent to the United States, taking with them a few tons of English pig-iron, &c., to test the suitability of the Danks's furnace for the production of wrought-iron. Such a policy would be cheaper and more satisfactory than erecting further experimental works here.

The sectional diagram, which was communicated with the paper, showed that the furnace was 24 ft. high, that the top of the bosh was 6 ft. 6 in. in diameter, that the top of the hearth was 2 ft. 6 in. diameter, and that the bottom of the hearth was 2 ft. diameter. The throat of the furnace was 3 ft. 10 in. diameter, and the tunnel head 5 ft. 6 in; the tuyeres were 3 in. diameter in the nozzle, and hot-air was sent in at a pressure of 3 lbs. The hearth seems about 3 ft. 6 in. deep. The blowing-engine is a small horizontal one, with a receiver intermediate between the engine and the hot-air stove, which has four pipes; the air is heated with an ordinary grate and stove, but the temperature is not given. The members remarked upon the great interest and importance of the paper, and resolved to discuss it at a meeting to be especially convened for the purpose.

METALLURGICAL WORKS IN AMERICA.

During the week your correspondent has had an opportunity to visit and examine the works of Mr. Charles M. Wheatley, known as the Schuylkill Copper Works, at Phœnixville, Pa., one of the very few prosperous metallurgical operations in these dull times. As there is much to interest your readers at these works, I notice the peculiar features. The Schuylkill Copper Works is situated on the line of the Reading Railroad, at Phœnixville, 28 miles from Philadelphia, and connected directly with the railroad which runs in front of it by a siding. The plant consists of three furnaces, connected with one stack, and combines all the appliances necessary for the smelting of copper ore, reduction to a matte, and refining the matte, and the melting and running of the refined metal into ingot copper. The process used is that in vogue as the old Swansea process, and preferred on account of its ability to treat all copper ores, no matter what their gangue may be. Fire tries all things, and the old fire process is believed to be the most reliable and inexpensive method, although some of the latter processes, of which more anon, are very successful in working certain ores. The furnaces here are about the size of ordinary heating furnaces in a rolling-mill, the entire building, which is of brick, being about 60 by 40 ft. The two furnaces at either end are used for smelting ore and refining the matte: while the third, or centre furnace, which is located directly under the stack, is used for refining the metallic copper and running into ingots. The product of the works is something over 12,000 lbs. of ingot copper weekly. The amount smelted in November, to and inclusive of the 24th inst., being 48,000, with another run of 12,000 lbs. to make in the month.

The process of casting the ingots has none of the exciting adjuncts of the Bessemer "blow" or "teeming" crucible steel, but, nevertheless, has much of interest and wonderful beauty in the curious tints of the molten copper. The moulds, which are of cast iron and of the usual size for ingots of copper, are placed in double rows over a shallow tank of water, and each pair of moulds is hung on pivots, precisely like a waffle iron, to use an illustration familiar to the hardware trade. The melted copper, when ready for pouring, is dipped from the bed of the furnace in ladles holding possibly 50 lbs. each, and poured by hand into each mould. No especial pains are taken to fill each mould continuously, the remains of one ladle in a mould being supplemented by the contents of another, and no seam or division being visible in the ingot. As quickly as the metal sets, which is almost instantaneously, the moulds are inverted, and the ingot falls into the tank of water. This is done to prevent oxidation by the atmosphere while hot, under which the ingot would blacken on the surface. The moulds are turned over, dried by inserting a sponge in the end of a rod, and again filled, the process being almost continuous. The ingots are taken from the tank by hooks, barrelled at once, and loaded into cars almost before they are cool. The best part of the process is that the product is net cash, and, in fact, may be realised on before it reaches the merchant's store.

The Schuylkill Copper Works receive ore from all sources, and while I was present received a lot from Texas of wonderful richness. This ore is found by the Indian traders some 200 miles from rail, and is principally surface ore. It is wagoned this great distance to Dennison, and shipped thence *via* Hannibal (Mo.) to Phœnixville. The rail freight alone amounts to $38 per ton, but we are dealing with copper, not iron ores, and one may disregard $40 or $50 charges when the ore nets the seller over $300 per ton. This ore is in boulders about the size of a cocoanut, which, when broken, are almost pure carbonates of copper, and with them are found splendid specimens of malachite. No less than 70 per cent. of metallic copper is the yield of this ore.; and, as copper ores sell for from $3·75 to $4·25 per unit of copper contained, the profit is apparent, even with this long road to mill. Missouri ores, averaging $30 to $35 per cent copper, are also largely handled here, with quantities from nearer home. Several methods are in vogue here for buying ores, one of which, and the fairest to the seller, is to charge a given sum per pound of copper in the ore for reduction, and to give the net price in cash for the copper produced, whatever the quotation may beat the time of sale.

A short distance below the Schuylkill Copper Works is that of the Chemical Copper Company, where the interesting chemical process of T. Sterry Hunt is in use, and by which ores containing but 3 per cent. of copper can be worked at a profit. This works is also very prosperous, and engaged in adding to its plant. The proprietor of the Schuylkill Copper Works being a gentleman of culture, gave me the pleasure of examining a wonderful collection of minerals and a library, principally of works on mining and cognate subjects, which possesses some features of rare value. Among these is an old tome which laughs at Centennials, it having already seen three of them, and puts all our boasts of mechanical progress in the 19th century to the blush, by showing us that the Germans over three centuries ago mined and hoisted their ores and pumped their mines by the same mechanical contrivances which we now use. Verily there is nothing new under the sun. This work is Agricola's "De Re Metallica," and printed in Latin in 1575. It is profusely illustrated with woodcuts of an excellence astonishing for that period, and for execution and sharpness of line equal to many now used. We have placed the use of tramways in England at somewhere in 1700—here Agricola gives a cut of a tramway, with an ore car—coming over a trestle work and dumping the ore before a furnace, as much like the one I had just left as could be. And all this 300 years ago. The horse whim and drum; the endless chain pump, with a series of buckets on a rope; a double-bucket water wheel for hoisting or lowering, in which the water is turned off one set of buckets and on to another by gates, actuated by double levers; the slope or incline, the man-engine, adits and stopes, furnaces, cupels, crucibles, molds, a power hammer, all very little behind those of the present day, are here illustrated as in actual use 300 years ago. Steam and the Keely motor were alone wanting to induce the belief that we were looking at cuts of present workings.—*Iron Age* (New York).

ECONOMY IN FUEL.—M. Lagosse, of the Montgon Paper Mills, France, communicates to "La Métallurgie" an account of a process devised by M. Charpentier, a Paris engineer, for the complete combustion of coal under a constant volume of burnt gases. After quoting the opinion of Péclet, that the draught of the chimney of a boiler furnace causes a loss equal to 25 per cent. of the fuel burnt, and speaking of the failure of smoke-consuming appliances on account of the cooling produced being more costly than the economy resulting from the consumption of smoke, M. Lagosse states that the apparatus under notice consists of a fan or blowing apparatus of some kind, a gas-producer for turning fuel into gas, and a regenerator of the heat drawn along by the gases to the base of the chimney. The gas-producer may either form part of the firegrate or be separate from it, according to the arrangement of the boilers. The gases of combustion, intimately mixed with atmospheric air, are completely burnt without producing smoke; no cinders are made, and all the ashes even which fall through the grate bars are again charged on the fire. Valves properly arranged permit of the regulation of the air which is admitted at certain points of the gas producer; the stoker is, therefore, able at any moment to raise the pressure of steam, or, if it be preferred, to keep it at a uniform pressure. The damper, almost entirely closed, opposes the free dilatation of the gases; their heat remaining almost constant, they raise the feed-water in the regenerator to a temperature of 203° Fah. M. Lagosse concludes by stating that, whereas under the old system of chimney he required two boilers, one of 40 and another of 50-horse power fired hard, he now found that the 50-horse power boiler was sufficient by itself, the power expended being rather greater, with an average saving in fuel of 20 per cent. In addition to this, he has substituted close-burning slack for semi-bituminous unscreened coal, and is burning up daily a portion of the cinders that have for years accumulated on the works. The apparatus takes but little time to erect, and involves no stoppage.

SMELTING METALLIC ORES.—The nature of the invention of Mr. W. ROGERS, of Leechburgh, Pennsylvania, consists, first, in the process of smelting iron ore evolving heat within the smelting chamber of a furnace by the union of atmospheric air, or its chemical equivalents, with an inflammable gaseous matter. Second, in the process of puddling and heating iron evolving heat within the working chamber of a furnace, by the iron (union?) of atmospheric air or its chemical equivalents, with inflammable gaseous matter. Third, in the peculiar construction of the furnaces, and the generation of heat within the working chambers thereof.

STEAM-ENGINES.—Messrs. LEGGE and RICHARDSON, accountants, propose to construct the crank shaft of a steam-engine with three cranks, the two outer ones being bent one way and the intermediate one bent the other. The two outer cranks are worked by a piston working in a cylinder, and the intermediate crank is worked by another piston working in the same cylinder. Instead of the two outer cranks being worked by a piston, they may be connected to the cylinder itself, which is then caused to slide upon a suitable bed, and thus take the place of one of the pistons.

THROAT IRRITATION.—The throat and windpipe are especially liable to inflammation, causing soreness and dryness, tickling and irritation, inducing cough and affecting the voice. For these symptoms use glycerine in the form of jujubes. Glycerine, in these agreeable confections, being in proximity to the glands at the moment they are excited by the act of sucking, becomes actively healing: 6d. and 1s. boxes (by post 8 or 15 stamps), and tins, 1s. 6d., labelled "JAMES EPPS AND CO., Homœopathic Chemists, 48, Threadneedle-street, and 170, Piccadilly, London.

THE SUNNYSIDE LEAD MINING COMPANY.

We have the pleasure of publishing *in extenso* the report of one of Her Majesty's Geological Surveyors in reference to the site and character of the Sunnyside Lead Mines, in Durham. Since the writing of this report, the machinery referred to, the completion of which was a desideratum, has been provided. To convey a proximately accurate idea of the operations which have been carried on, the adit level has been driven nearly 600 fms., and the present end is within a few fathoms of the great junction lode that traverses the whole of the district:—

Haltwhistle, near Carlisle, Nov. 24.—On the 25th of October, in company with Mr. Bell, I visited Sunnyside, and minutely inspected the surface indications of the veins and the geology of the district, with which I was previously very familiar, and on the following day I minutely inspected the mine, noting the indications of veins and examining the explorations. I have had thus every opportunity of which circumstances permitted of forming a correct opinion of your mine and of your prospects.

GENERAL REMARKS.—Strata: The surface comprises beds from the millstone grit down to the Crag Sill, the former being at the southern end, and the latter, (forming the foundation of your new wheel case) at the northern limit. I have found it advanced against this mine that it is too near the coal measures, but this is accidental, and is not due to the high geological horizon of the royalty. The rich Sharnbury Mine, four miles south-west of Sunnyside, though further from the Newcastle coal fields, is in higher beds, and geologically nearer coal. The Derwent Mines, again, which have been productive for generations, are exactly similarly circumstanced in this respect.—Compared with the Derwent Mine: In the Derwent Mines the greater part of the ore hitherto raised has been got out of strata above the random of your adit, and the question arises—Why have strong veins at Sunnyside hitherto yielded only a moderate quantity of ore? When we compare the sections of the two places the reason becomes evident. Where the sides of lead veins are formed of thick beds of sandstone they are generally found to be productive, and sometimes as much so as in the thick limestone. These sandstones, however vary much in thickness from place to place, and when they are thin the alternating shales thicken, and *vice versa*. It so happens that in the Derwent Valley these sandstones over the adit are exceptionally thick, while at Sunnyside the shales predominate, and the sandstone strata are numerous and very thin. This will be strikingly seen by comparing the following section in Derwent with the section at Sunnyside, down to the Crag sill, with which it corresponds:—Coarse sandstone, 111 ft.; shale, limestone, and coal, 6; black shale, 4; Crag sill, 36; coarse sandstone, 103. While this prevalence of shale in your mine has militated against its productiveness so far, a knowledge of the fact that it has been the cause of the paucity of ore gives greater encouragement to sink to the limestone than past returns would otherwise warrant.—Limestone Lower at Sunnyside than at Alston Moor: All advices as to your further movements, based on Alston Moor experience, would, I feel assured, urge you to explore the great limestone with all confidence. But it must be borne in mind that while in Alston Moor the great limestone is far up on the hill side, in your territory it is below the bed of the Wear. Moreover, veins have been found in this mining field as a rule to narrow downwards, and hence it will be seen that in Alston Moor the great limestone occurs where the veins are widest, while at Sunnyside it is down where we may expect they have somewhat narrowed. But though I cannot hold out for the great limestone that supremacy as an ore producer which it maintains in Alston Moor, I shall have occasion further on to advise you to sink to it. In the event of your sinking to the great limestone, and there finding the veins productive, you may find them to continue to be so to a much greater depth.

CONTINUITY OF VEINS.—I would remark that it is a most deceptive thing to seek to identify veins in one area with those in a distant area which point towards the first. A vein is so liable to change its direction, and other characteristics, and to die out or be cut off by another vein, that it is never safe to calculate on any but a strong vein far past where last seen.

EXPLORATIONS ALREADY MADE.—Adit: The adit driven from near the northern extremity of your territory to past Bell's shaft has explored your royalty as far as it goes for east and west veins. A group of veins have been discovered near the adit mouth, and another group near Bell's shaft, with a few weak strings between.—Adit Mouth Veins: The group near the adit mouth comprise Whiteheap's white vein, Smith's vein, Eddy's vein, and Wooller's vein. Whiteheap's white vein has only been seen in the adit. Eddy's vein has been seen in the adit, and in Whiteheap's shaft. Allison's cross-cut has been driven to further explore this vein, and strings with lead ore in them found. Smith's vein has only been seen in the adit. Wooller's vein has been seen in the adit, and has been risen in a short distance.—Bell's Shaft Veins: The group near Bell's shaft comprise Sparry vein, Bell's vein, Crawhall's vein, Rise vein, Thornhope vein, and a number of strings which it is not necessary to mention in detail. Sparry and Crawhall veins are the same lode, and have been operated upon as far as the blue lines representing them on the plan indicated. Thornhope and Bell's veins have also been operated upon to some extent. Rise vein has been little seen, except where intersected in the adit.—Slit Vein Level: This is an old exploration made in search of the Slit or Harehope Gill vein at a random, probably a little higher than the mouth of Bell's shaft. Mr. Bell has been in this level, and has seen vein strength at places marked by fine blue lines; that at E showing a strong vein in the shale, in which the level is principally driven.—Wooller's Level: This level was driven for the same purpose as the Slit vein level, but nothing was found beyond a few strings crossing near the level mouth.—Liddle's Shaft: This shaft is said to be sunk on a vein, but it could not be explored for the water. The above two levels and shaft are all old workings.—Plantation and Quary Veins: These are only surface indications, and though valuable as something to keep in view in making explorations they are not known to contain any mineral wealth.—Undiscovered Veins: From purely geological consideration I have an impression that there is a north and south vein throwing the beds down on the east between the Slit vein level and the workings in Crawhall's vein; of this I would be almost certain were it proved that the Felitop limestone is just under the sole of the Slit vein level, as Mr. Bell supposes, and which I think very likely. A branch of the Sharnberry vein points towards the upper part of your territory, and to drive an exploration level from Bell's shaft to its south-east corner is an enterprise that may yet be well worthy of your consideration, but one it would be imprudent to begin with in the meantime.—Group of Veins near Adit Mouth: Of these veins I saw little but their effect on the strata in throwing them up or down—Indeed, they have been scarcely explored, except in so far as driving the adit through them has proved their existence.—Eddy's Vein: This vein crosses the adit very obliquely; it was followed some little distance between, finding it entering the level on the left, and leaving it again on the right, and was found to be 1 ft. wide in the shale, with traces of ore. In driving Alison's cross-cut several strings were cut with ore in them, running parallel with Eddy's vein; this vein has very little throw or dislocation of the strata and hades through Whiteheap's engine-shaft, near its present bottom. It has only been seen in the shale between the Crag limestone and Crag sill in the adit, and again in the shale in the shaft.

Whiteheap's Vein: This vein has a throw of nearly 2 fms., so that the crag limestone is thrown down from the roof of the adit below the sole; this vein also showed traces of ore, but it has been seen in its most sterile aspect with shale on one or both sides.—Smith's Vein: This vein has a considerable up-throw on the south-west, so that in passing through it the adit is far down in the crag sill; here again traces of ore are said to have been found, but here again shale formed one cheek of the vein. Of these veins the most that is known of them is—that they exist, that they dislocate the strata to the extent stated above, and that the lines on the plan is an approximation of their direction. They have been cut in places where rich and poor would alike be unproductive, and the presence of ore at all is a very significant omen of better things below; the veins are proved to exist—and it is now required to explore them in the only place where it is possible for ore to be, that is in the great limestone, and in a lesser degree in the coal sills and little limestone. If found of considerable thickness, the great limestone is here at such a moderate depth, there is not much to be feared of the narrowing I have above alluded to. I advise you to sink the Whiteheap's shaft to the tuft below the great limestone; drive to Eddy's vein, and follow it to its intersection with Whiteheap's and Smith's veins. It will drain the workings at Bell's shaft, and will enable you to explore the veins in the great limestone at the least expense by rises in these veins, and on their aspect there must depend the future movements.—Whiteheap's Shaft: This involves sinking Whiteheap's shaft 26 fms. further, and driving a few yards; one reason for advising you to sink deeper is that it will assist in draining the workings at Bell's shaft, which I will refer to more fully further on. Another reason is that by so doing you will be enabled thoroughly to explore the veins in the great limestone at the least expense. It will be much cheaper driving in tuft in search of veins than in solid limestone. If found profitable you will by this plan be able at once to work them comprehensively and economically.

PROSPECTS OF ORE.—Though I have held out no definite hopes with respect to these veins, yet considering that Mr. Bell found Eddy's vein 4 ft. thick in shale, with several strings beside—that Whiteheap's and Smith's veins are both strong—that so many veins intersect in so small an area, and that the limestone is at such a moderate depth, I can scarcely conceive your making these explorations without getting some considerable quantity of ore, and I know of no reason why there should not be an excellent mine awaiting your discovery. It is a trial, but a legitimate one—further data are required, and these can only be had by further explorations.—Wooller's Vein: This is the next along the level, it is seen under much more favourable aspects than any of the others already described. It has been cut by the adit in the Crag sill, and has been explored some little distance up the adit. It consists of a few strings, and though reported to have contained ore at surface, it did not show any where I saw it. It is just possible these strings may unite down in the great limestone, to form a productive vein, but it seems to me to be one of those soft weak veins which thin out rapidly downwards. I would advise you to spend no money over this vein in the meantime but keep it, and other weak veins between it and Bell's shaft, in view of operating on more powerful veins in their neighbourhood.

GROUP OF VEINS AT BELL'S SHAFT.—Dip of Strata: All the way from Smith's vein to Bell's shaft the strata dip south-east, so that a little south of the angle in the adit the Crag limestone again gets under the sole. South of your territory the strata dip east, or a little north-east, and hence the veins at Bell's shaft, or others not far south of them, should be main drains for the surface water which finds its way down among the strata, and, according to the theory elaborated by Wallace in his "Treatise on Mineral Deposits," should abound in mineral wealth.—Rise Vein: This vein has been cut by the adit in shale,, and is there seen to consist of a few inches of spar, said to have been found quick with ore. It should be looked for down in the limestone, but it did not seem a vein much to be depended upon.—Bell's Vein: I did not see this vein, as the workings were full of water. It was described as a hard vein, 4 ft. wide, in the Crag limestone, and as fairly productive. On the Tuesday I saw some fine specimens of ore which had come out of it. Such a vein should certainly be explored in the great limestone.—Thornhope Vein: This vein runs north and south. Indications of it are supposed to have been seen in the adit near Smith's vein. On the other side of the Wear Valley, in the line of this vein, are ancient lode workings. It is a hard vein, and has in parts been found fairly productive. Where I saw the men working in it, it was calcareous spat above the firestone. It was 1 ft. wide just at the forehead, and contained patches of ore. A few feet back it was much wider and richer. It may average 3 or 4 ft. wide. It is a hard vein, and one I would expect to retain its width well downwards. Of the veins I saw I consider it the great hope of your royalty, and you should explore it well in the great limestone at Bell's shaft, or search for it in the neighbourhood of Whiteheap's shaft.—Sparry Vein: This vein and Crawhal's vein are, doubtless, the same lode, although the workings in them have not been continuous. Sparry vein I saw in the firestone, in which stratum it has been driven for a considerable distance. It fluctuates much—from a few inches to over 4 ft. It shows a good cheek on the south side, and throws down the beds on that side 15 ft. It is a vein of considerable strength, filled with calcareous spar and quartz, showing only the merest specks of ore; altogether it has not a promising look, and I would not advise you to move on it at the random of the firestone.—Crawhall's Vein: This vein has been most operated upon of any of the veins, and with the most results. It has been sunk on below the level of the adit, and wrought for lead ore to a width of nearly 20 ft. in parts. It was driven in some 30 fms. at the bottom of the firestone, but had to be abandoned because of the water. Tinkler's rise has been put up from the adit level to the 9-ft. post over the firestone; it has been driven west towards Thornhope vein increasing in productiveness all the way, and paying well for working. Driving east again it became poorer and poorer, assuming more and more the look of sparry vein. I am much inclined to infer from this that Thornhope vein is really the source of the lead ore, and that Crawhall's vein is mineralised by it to some distance on the east. When I look at the great width of Crawhall's vein where sunk on, its increasing width downwards and its richness in these thin limestones, I see the greatest encouragement to explore it in the great limestone; down there it may be productive throughout its length; it can scarcely fail to be productive for some distance east of Thornhope vein. Its nearness to the shaft, the great width of vein, and its soft workable character, would make it extremely profitable if found rich. The circumstances I have mentioned point to a considerable deposit of lead ore east of the intersection with Thornhope vein.

It will be noticed that while I advise you to sink Whiteheap's shaft as an exploration well worthy to be made, you have here a distinct promise of something very good. Crawhall's vein has produced some 1600*l.* of ore in sandstone among much shale. It has been found to widen downwards as far as it has been explored, and to be of great width, approaching 20 ft. in parts. It is this great increasing width downwards that makes me sanguine of good results. I would consider there was sufficient encouragement from Crawhall's vein alone to sink Bell's shaft into the great limestone; but when I add to this the inducements there are to explore Thornhope's and Bell's veins, strong, hard, and productive, I have no hesitation in advising you to sink boldly, and try these veins in the great limestone and coal sills.

DRAINAGE.—In driving in Crawhall's vein, at the bottom of the firestone, the water seemed to come up from the sole of the level and from the east forehead. Now, as the beds dip eastward we would naturally have expected the water to have come from the west. It came probably from the west through the great limestone, and up through the vein to the drift where met with. As the 32 ft. wheel has as much as it can do to keep the water down now it must have assistance before sinking recommences. A pleasing feature in connection with this is the reciprocal influence the drainage of the two shafts have on each other. Flooding Whiteheap's shaft has been found to increase the supply of water at Bell's shaft, and when the water sunk in the former the supply was reduced to its former amount at the latter. A flow of water can be noticed crossing Whiteheap's shaft in the direction from Bell's shaft towards the river. This flow of water is most likely through the little limestone, the Whiteheap's shaft standing dry down to near the stratum. Seeing this happens with the little limestone, it will do so more readily and effectually with the great limestone. I expect if the Whiteheap's shaft be sunk to the tuft it will drain Bell's shaft to the middle of the great limestone, with little or no pumping power at the latter; this will throw the burthen of pumping on the 42-ft. wheel now erecting for that purpose alone, and which has a much more copious supply than the other.—Harehope Gill Vein: Seeking Harehope Gill vein has been the leading aim of your endeavours, yet to this day you do not know that you have seen it. It is said to be the Slit vein which has been so extensively worked in Weardale; of this I am not certain, but it is of little importance; it is sufficient to know that Harehope Gill vein was very strong and very rich. I have talked with a miner at Catterick, 3 miles from Sunnyside, who drove 20 fms. into the vein, and was not through it then. It was productive of galena and carbonate of lead. At Harvey Hill, 1300 yards from Bell's shaft, it is seen on the surface to be still a strong vein, and to continue in the same direction, that is, pointing to Bell's shaft. Of the veins discovered at Bell's shaft, Bell's vein is the only one that can be looked upon as representing the great vein; that a vein of 4 ft. wide and 2 ft. throw can represent all or the main part of it, is so extremely improbable that I will consider the alternative theories that occur to me.

THEORIES.—It may have been cut off by a north and south vein near Harvey Hill and your royalty.—2. It may have been thrown south by some such vein.—3. It may pass through Liddle's shaft and Slit level.

The first theory is very improbable, as we know of no vein but Eddy's passing between Harvey Hill and Sunnyside, and we could only expect it to be cut off by a vein of great strength. The second theory is a more likely one, as Eddy's vein might be the means of throwing Harehope Hill some distance south, although it did not cut it off altogether; but even this is not likely. The third theory is much more probable still. If Harehope Gill vein continued its course east to Liddle's shaft, and so on across your territory, it would occupy at the surface some such position as the line A B on the plan. This corresponds very nearly with the vein seen 9 ft. wide in shale at E, in the old Slit level. The little discrepancy is as nothing in tracing a vein, as they seldom keep a perfectly direct course; and, besides, there are the intersections of Thornhope and Sparry veins to account for it. The question now arises, if Harehope Gill vein be in Liddle's shaft, and at E on the surface, why has it not been met with in the adit, or in prosecuting Sparry vein? The answer to this is that while the vein at the surface occupies some such position as E F, down at the random of the adit it has haded so far to the south as to be beyond any explorations yet made, or in some such position as A B. This would require a hade of 48° from the vertical, which is more than usual, but a hade that might very well occur in a section with such a large proportion of shale. The vein seen in Liddle's shaft might very well be Rise vein, or even Bell's vein; but the very strong vein seen in Slit level cannot be identified with anything yet seen underground, as a glance at the plan will show; and thus it affords a very strong argument in favour of this theory. The fourth theory is also quite plausible; there would be nothing very extraordinary in the Harehope Gill vein, east of Harehope Gill, treading more to the south. As it is not met with in Wooller's level, nor any indication of it seen in the forehead of that level, we cannot when considering the hade give it a position at the level of the adit much nearer the present workings than the line C D. Of these theories I consider the third and fourth the most likely; and, when we take into consideration the strong vein seen in Slit level, the balance of probability is in favour of the third. All these theories except the first, and most improbable, point to the Harehope Gill vein as lying to the south of your explorations, and the most probable is that it lies within a very short distance of the adit forehead, the desirability of pushing on the adit now becomes self-evident; it would be madness to stop without driving to the furthest limits of your royalty in search of this grand vein.

CONTINUE THE ADIT.—I would recommend you to continue the adit in the direction indicated by the broken lines on the plan. The advantage of this change of direction is that you thus keep clear of Thornhope vein, which is hard, and would make driving more expensive. Another reason is, that if you have to drive as far as C D you intersect it at the nearest point, and nearer the middle of its length, which would be an advantage in working the vein. If the vein be at A B the change in direction would be no advantage, and but little disadvantage.

Even if there were no Harehope Gill vein to look for it would be well to continue the adit to the southern extremity of your royalty. It would cut Plantation vein and the vein at E, in Slit level, be it Harehope Gill vein, or some other, and by making cross-cuts to Thornhope vein it could be tried at desirable points, and Quarry vein could be explored by continuing one of these cross-cuts.

CONCLUDING REMARKS.—You have have sunk about 620 ft. vertical distance of shafts, and driven about 530 fathoms of levels in exploring about three-quarters of your territory for veins. You have found several, but owing to the nature of the strata in which they have been explored they have only proved moderately productive. I now recommend you to sink 350 ft. more, in order to thoroughly explore the discovered veins, where they ought to be richest, and to drive 165 fms. more level that you may explore the remainder of your territory, where there are reasons for believing the Harehope Gill vein lies untouched. The further explorations I have recommended are comprehensive enough, and still they are little compared with what you have done, while the prospect of a return is immeasurably greater. I cannot impress on you too strongly that the past results are no criterion of the value of the veins, owing to the strata you have explored them in. I have much pleasure in recommending you to press vigorously on; you have got little ore, because you have not searched for it where there is a chance. In the case of Crawhall's, Thornhope, and Bell's veins there is a probability of ore being found in considerable quantities in the ore-bearing strata. Vein mining is capricious, and cannot be carried on without risk, but you have all the inducements which such an enterprise admits of, short of a mine already rich, to extend your operations. Of the three works, I recommend you to sink Whiteheap's shaft to the Tuft: let Bell's shaft stand till it is seen that the water has decreased; the extension of the adit can be carried on simultaneously. There are indications of vein strength passing between your adit's mouth and your new wheel-case, which it may be well to look into at some future time, but let nothing in the meantime divert you from the main operations. Although I did not make it my business minutely to inspect the mechanical arrangements of the mine, still no stranger can visit them without being struck with the ingenuity, completeness, and economy with which they are laid out; they only want extension, not alteration; when the new wheel is working you will scarcely lose an available gallon of water or a pound weight of energy. The continuity of the railway to the works, the ability to dispense with steam-power, and the excellent washing machinery, will make the mine pay even with a moderate yield of ore—a moderate quantity you may rely on finding, with a strong probability of finding much more.

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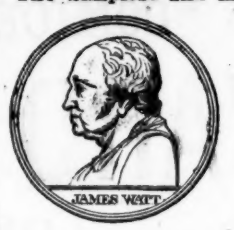

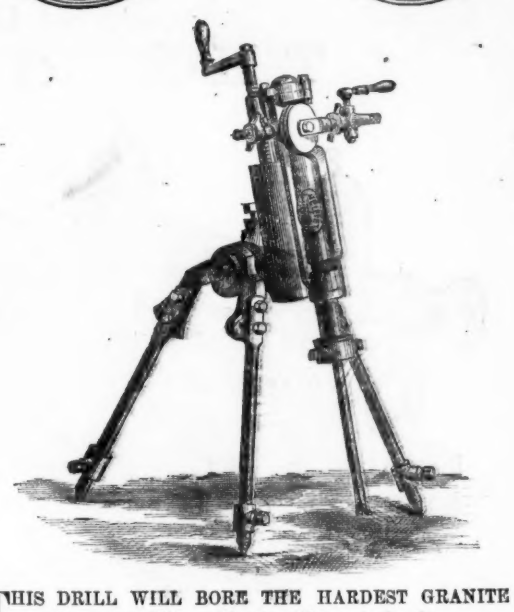

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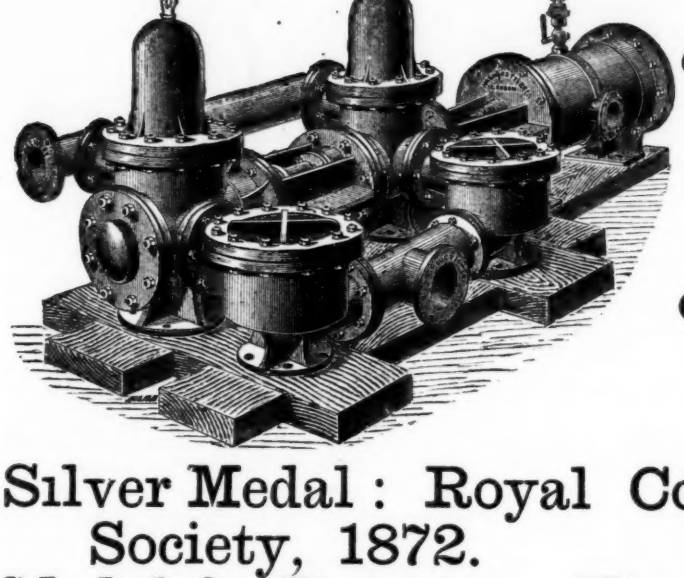

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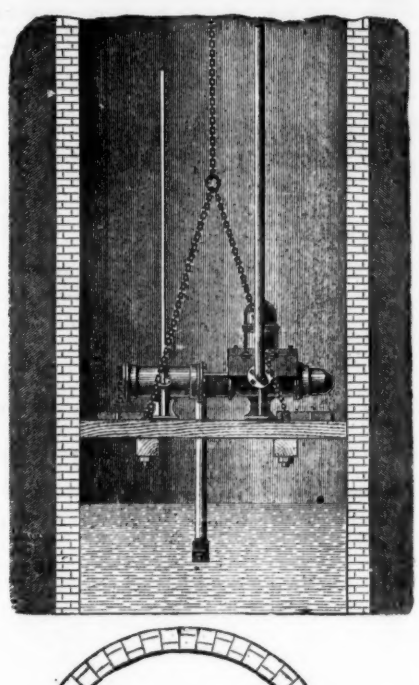

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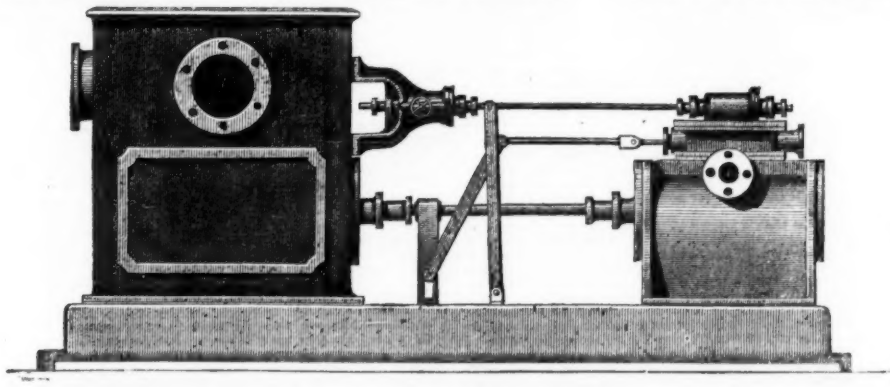

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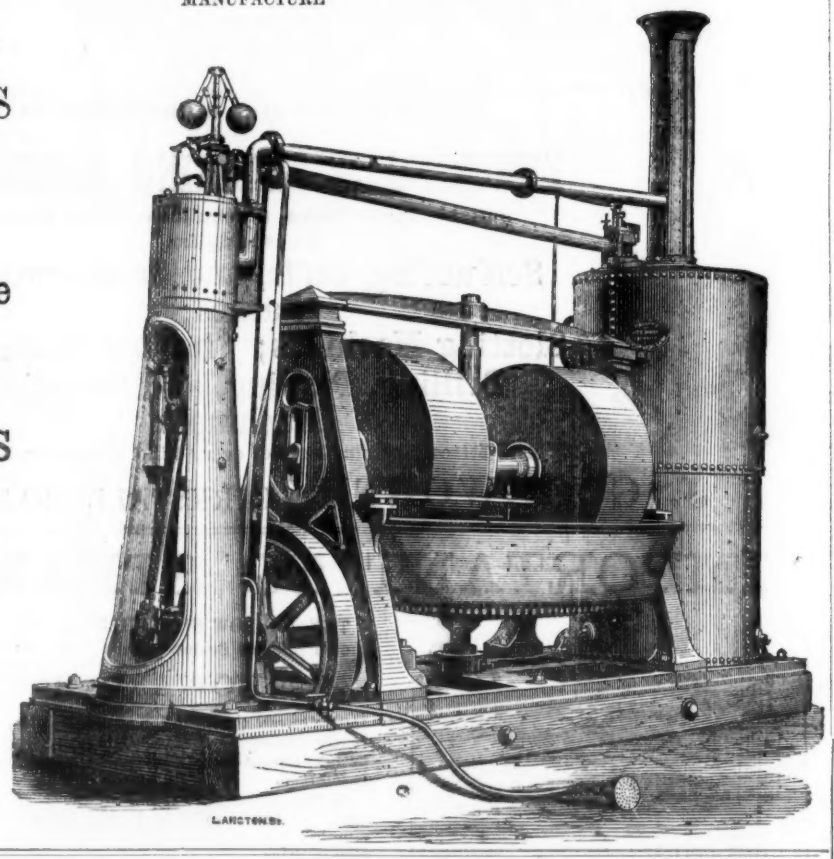

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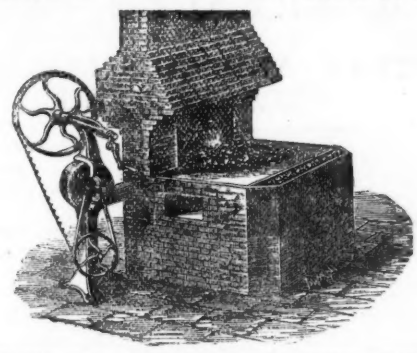

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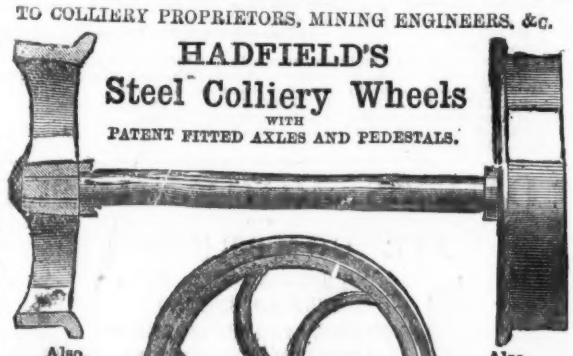

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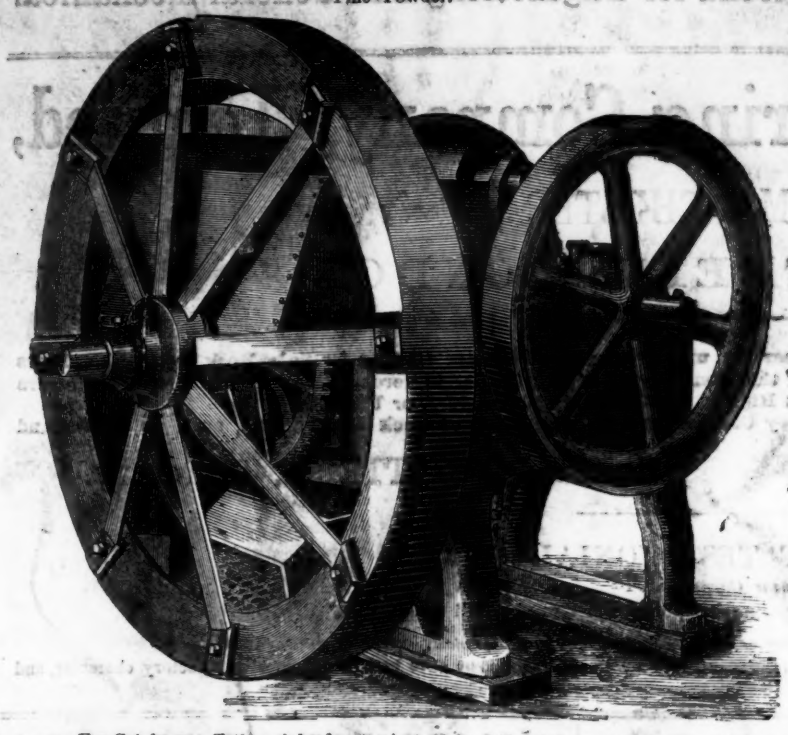

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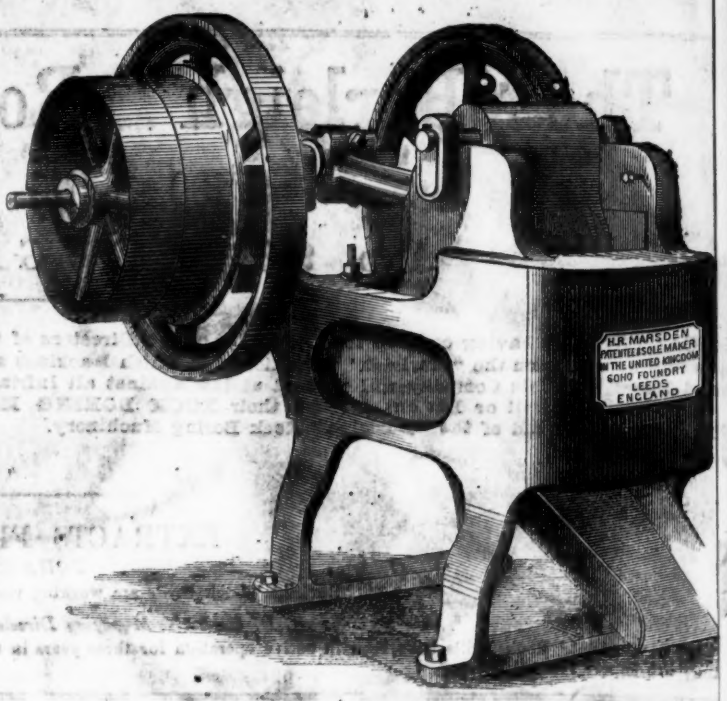

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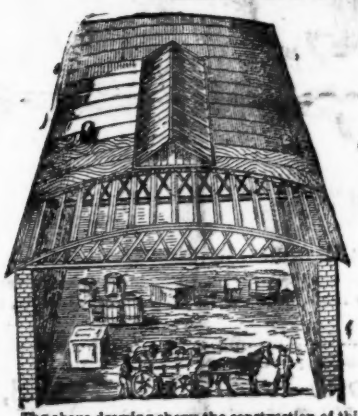

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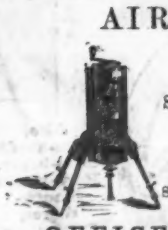

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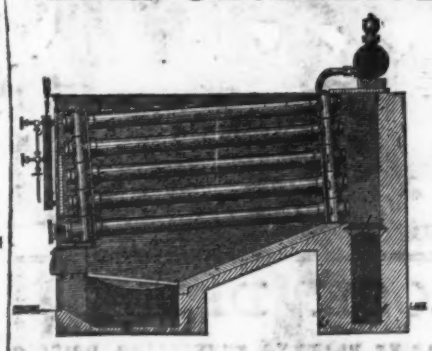

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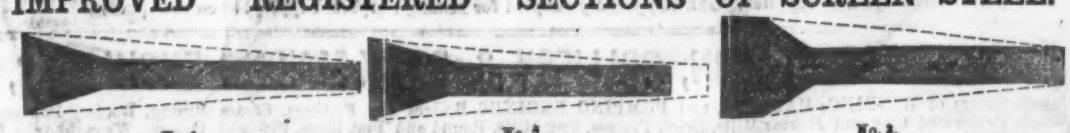

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